



# DIGITAL EDUCATION

Cornell Cooperative Extension | Marine Program

Teacher/Student Resources

## ALEWIFE

*Alosa pseudoharengus*

### Topics and Keywords

(Define these words first, or refer to the **Glossary** on the last page)

Science and Technology

Migration

Filter feeder

Environmental Problems

Food web/Food chain

Habitats

Life cycles

Spawning

Fish ladders

Anadromous fish

Reproduction

Fresh water/salt water

### WATCH

“Fish Ladders” – <https://youtu.be/ybFqvBV4F98> (1 min)

“Alewife Run” – <https://youtu.be/JIDSi9RV7-8> (7 min)

Explore the ecology and importance of the alewife fish. Find out what struggles this species faces due to human activity, and what we are doing to help their population recover.

### RESPOND

**Answer** (can be completed by watching the video and reading included fact sheets)

What kinds of predators rely on alewives for food?

- Trout
- Osprey
- American eel
- All of the above

Where do alewives travel to spawn on Long Island?

- The Atlantic Ocean
- The Peconic River
- Long Island Sound
- The Pacific Ocean

In order to spawn, or lay their eggs, alewives...

- Swim south to warm water
- Swim north to cold water
- Swim downstream out to the salty ocean
- Swim upstream into freshwater rivers and lakes

Which of these fish also migrates upstream to reproduce, just like the alewife?

- Salmon
- Tuna
- Sharks
- Catfish

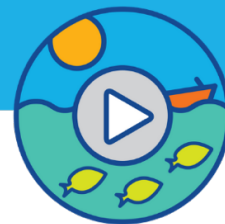
Why did the alewife population decrease?

- Diseases
- Too many predators
- Not enough food sources
- Man-made dams blocked river habitats

Why do people build dams in rivers and streams?

What is the main goal of a fish ladder?

How did the scientists count fish migrating upstream?



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**Discuss** (encourage collaboration, debate, and critical thinking based on video and fact sheets)

Why do you think Alewives go to the trouble of migrating against the strong current all the way from the ocean into freshwater ponds to lay their eggs?

In the video, legislators (law makers) were brought to a local dam to see the tens of thousands of alewife trying to swim past it. What do you think the purpose of this event was? If you were one of the law makers witnessing that event, how would you react? What kinds of laws or actions could you take to avoid this problem in your home town's river or stream?

What other environmental problems do you think alewives might face, that may not have been discussed in this video? What can you do as a citizen to help protect the alewife species?

Do you think the Alewife should be placed on the Endangered Species List? If so, what evidence would you need to present to convince the government that the Alewife needs that level of protection?

**Explore and Create** (encourage gathering of additional information beyond the video and fact sheets)

Research some of the food sources of alewives, keeping in mind they are mostly filter feeders. Draw a food chain or food web that includes the Alewife at the center. Include at least one primary producer, primary consumer, secondary consumer, and top predator. (If you constructed last week's Osprey food web, you can connect them together!)

Research and draw a diagram of the alewife Life Cycle. Include the male and female adults, eggs, larvae, juvenile (young), and where they spawn, grow, and spend adult lives. Take this one step further by drawing a picture that includes the ocean, a river, and freshwater pond. Place your life cycle stages in the appropriate locations on your picture.

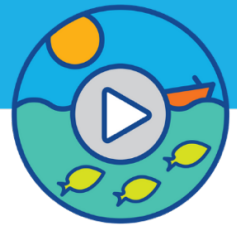
Compare the life cycle of the alewife to the American Eel, which is catadromous.

Explore the internet for some pictures of other dams in the United States or world. Choose a picture and write down the name of the dam, the city and state where it is located, and the name of the stream or river that it is blocking.

- Why was this dam built?
- What fish species migrate up this river?
- Design a fish ladder or your own creation that would help the fish migrate past the dam.

**Check back each week for a new topic!** <http://ccesuffolk.org/marine/digitalEd>





# ALEWIFE

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## GLOSSARY

- A) Anadromous fish spend most of their adult lifetimes in salt water oceans and migrate upstream into freshwater to reproduce.
- B) Catadromous fish spend most of their adult lifetimes in freshwater lakes and ponds and migrate downstream to the open ocean to reproduce.
- C) Filter Feeder – an animal that gets food by taking in water and filtering out microscopic organisms like zooplankton and algae
- D) Food web – a complex network of predator-prey interactions in an ecosystem
- E) Habitat – an area and all the resources and structure necessary for an organism to live  
Critical Habitat – an area that a species relies on for at least part of its life cycle that is necessary for its survival
- F) Life Cycle – the ordered stages of development of an organism, beginning with a fertilized egg, progressing through adult hood, and restarting with reproduction.
- G) Migration – mass movement of a group of organisms from one place to another, often seasonally for reproductive or feeding purposes
- H) Spawning – reproduction in aquatic animals in which millions of sperm and eggs are released into the water for fertilization

