



Northeast Ohio Regional Sewer District  
3900 Euclid Avenue | Cleveland, OH 44115

Volume 4 | Number 2  
NOVEMBER 2007

## No fish story: Species can't stand the cold

As the leaves fall and Lake Erie cools, beachgoers may have seen a surge of dead fish washed up on the shore. Is the die-off of these silvery blue-green fish a sign of environmental turmoil, or a natural occurrence? Studies have concluded it's the latter.

**Shad can't stand the change:** Known as the eastern gizzard shad, this fish species (*Dorosoma cepedianum*) is not native to Lake Erie or its tributaries,

and is very sensitive to rapid temperature changes. Lake Erie's water temperature, because of the lake's shallow depth and northerly location, can change very quickly in early winter months, causing die-offs of significant numbers of gizzard shad during October and November, according to study findings.

"It can be unsightly, but it's important to note that in most cases the die-offs are natural," said John Rhoades, Northeast Ohio Regional Sewer District Supervisor of Environmental Assessment.

**Study source:** Four scientists conducted the study in the 1980s, summarizing their findings in the 1986 report, *The effects of natural winter stresses on the mortality of the Eastern Gizzard Shad in Lake Erie*, which noted several other factors in the annual shad die-offs.

**Other causes:** Colder temperatures slow the shad's body's ability to draw nutrients from surrounding water, which commonly leads to starvation during colder months, causing further die-offs in December, January and February.

In 2006, the Northeast Ohio Regional Sewer District received numerous calls from concerned citizens believing some form of chemical spill may have caused the massive late-fall fish mortality.



Gizzard shad are a species that can't tolerate temperature changes, which leads to a massive die-off in Lake Erie every fall. Shown above is a similar die-off which occurs in California. Photo by Gary Valle 2001.

### Silvery fish wash up on the Lake Erie shore every fall, raising questions and concerns. Is lake turmoil or Mother Nature the cause?

#### environotables :: the gizzard shad

While unsightly, the annual die-off of fish known as gizzard shad is a natural occurrence based on its intolerance of drastic temperature changes.



#### NAME

Gizzard shad  
*Dorosoma cepedianum*

#### APPEARANCE

Silvery sides with colorful tints, sharply pointed tail fin, large eyes

#### OCCURRENCES

Young gizzard shad, because of their smaller size, are more susceptible to temperature changes and therefore die in large numbers in October-November.

Other die-offs occur throughout the winter as cold waters affect the fish's ability to properly transport waste and nutrients through its membranes.

#### CONCERN?

If you see evidence of a fish die-off that may not match this description, you can call:  
Ohio Division of Wildlife (330) 644-2293  
Regional Sewer District (216) 881-6600  
Ohio EPA (800) 686-6330

Sources: ODNR / John Rhoades (NEORSR)

COMMENTS? ADDITIONAL COPIES? email [gonzalezj@neorsd.org](mailto:gonzalezj@neorsd.org)  
MORE INFO? DOWNLOAD? visit us at [www.NEORSR.org](http://www.NEORSR.org)

CONT'D ON REVERSE

## CONTINUED FROM REVERSE

---

This was not the case, and shore-bound citizens should anticipate similar occurrences this time of year.

**Who to contact:** If you see large numbers of dead fish on Lake Erie's shore during the fall and winter, these may be gizzard shad die-offs. If you are uncertain, or concerned there may be other environmental factors involved, please contact the [Ohio Department of Natural Resources, Division of Wildlife](#) (330) 644-2293, the [Regional Sewer District's Water Quality & Industrial Surveillance Department](#) (216) 641-6000, or the [Ohio Environmental Protection Agency](#) (800) 686-6330.

## environotables :: future issues

### Signs of Cuyahoga River health

This once burning river has rebounded to show amazing progress, including recent test results indicating the river meets "exceptional" warm-water habitat standards.

### Watersheds 101

Get an entry-level overview: What is a watershed and how does where I live within a watershed affect me?

**PLUS: The facts about mercury and related health risks**

---

Download the latest ENVIRONOTES at [www.neorsd.org/aboutus](http://www.neorsd.org/aboutus)

