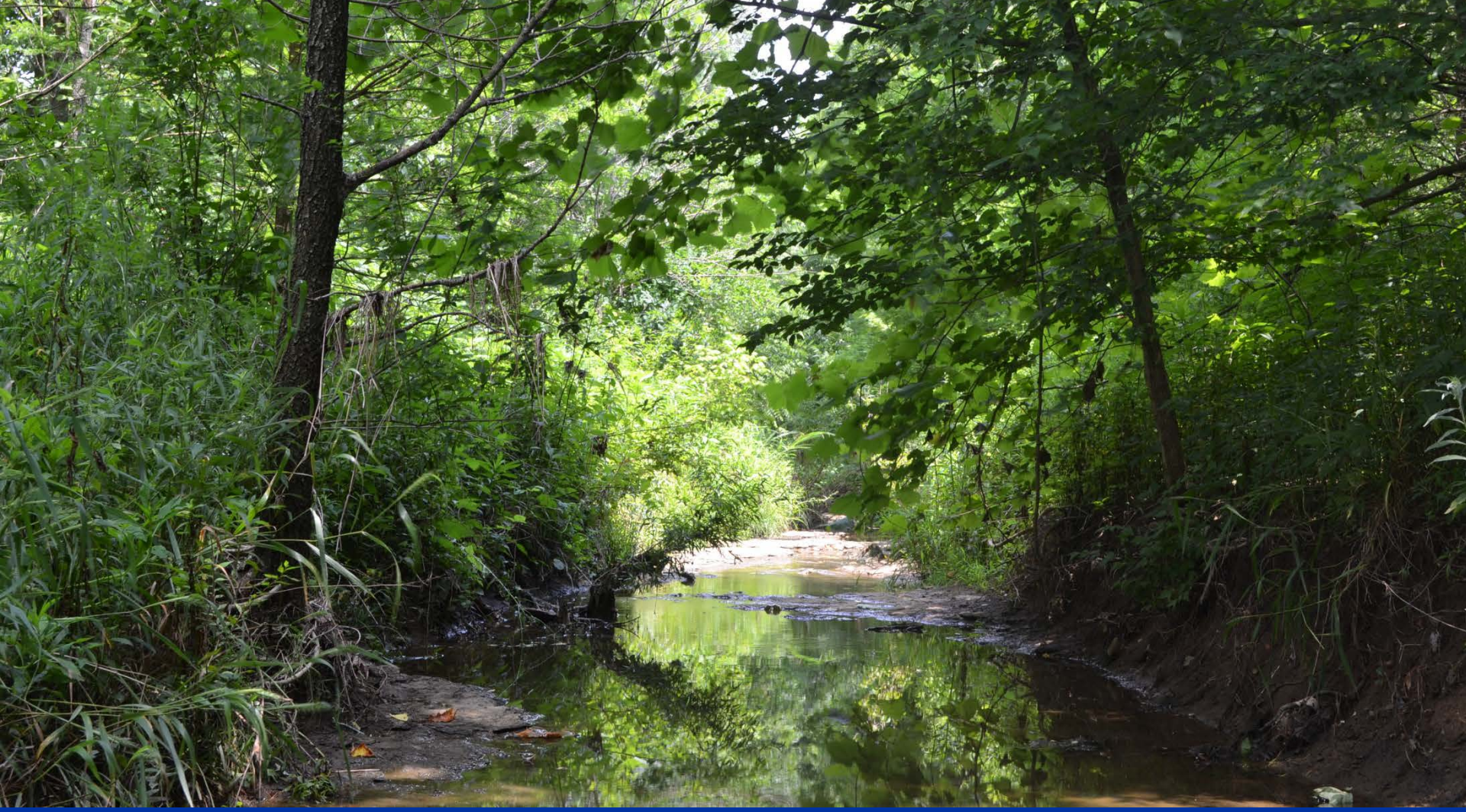


Kentucky Waterways

Amanda Gumbert, PhD
Extension Specialist for Water Quality

Cooperative Extension Service

KENTUCKY RIVER BASINS

KENTUCKY WATER FACTS

- More than 90,000 miles of streams and rivers
- More than 440,000 acres of lakes

STREAMS IMPAIRED (DO NOT FULLY SUPPORT DESIGNATED USE)

	2014	2016
Aquatic Life	49%	58%
Primary Contact Recreation (swimming)	71%	79%
Secondary Contact Recreation (fishing, boating, wading)	33%	45%
Fish Consumption	62%	60%
Domestic Water Supply	0%	0%
Outstanding State Resource Water	---	16%

Causes (Pollutants)

1. Pathogens (fecal coliform, E. coli)
2. Sediment
3. Nutrients (N, P)

Source: 2014 and 2016 Integrated Report to Congress, Kentucky Division of Water.
**Note: Data represent monitoring of approximately 14% of Kentucky's stream miles.*

If it's on the ground, it's in your water.

CHALLENGES FOR OUR STREAMS

- Volume
- Sediment
- Pathogens (bacteria)
- Nutrients

CHALLENGES FOR OUR STREAMS

- Volume
  - Impervious surfaces

WHAT HAPPENS WHEN IT RAINS?

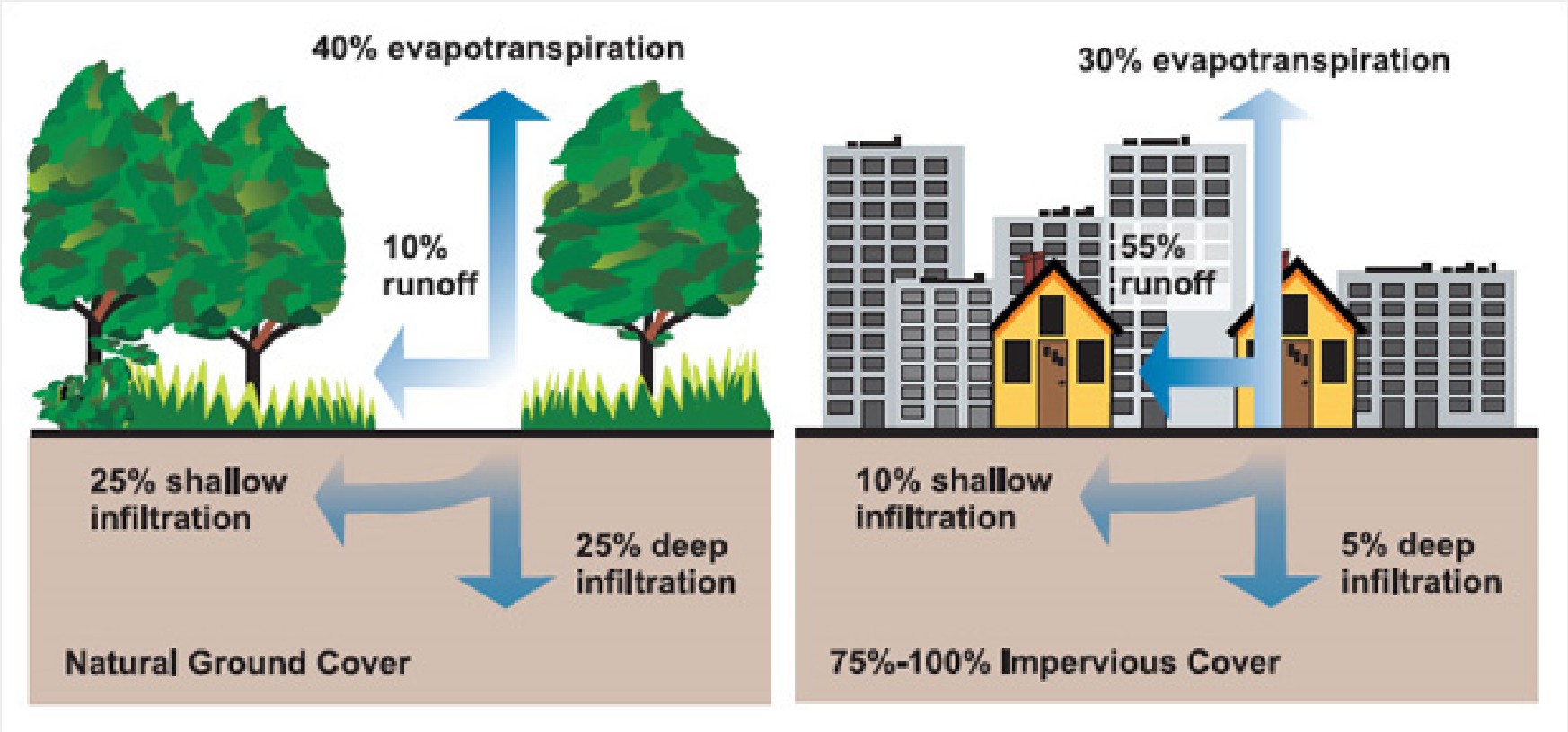


Image: https://www3.epa.gov/npdes/pubs/nps_urban-facts_final.pdf

CHALLENGES FOR OUR STREAMS

- Sediment (bare soil)
  - Streambank erosion
  - Construction
  - Tillage

CHALLENGES FOR OUR STREAMS

- Pathogens (bacteria, viruses)
  - Failing septic/sanitary sewers
  - Livestock
  - Wildlife

CHALLENGES FOR OUR STREAMS

- Nutrients (N, P)
  - Excess fertilizer
  - Animal manure
  - Human wastewater
  - Wildlife

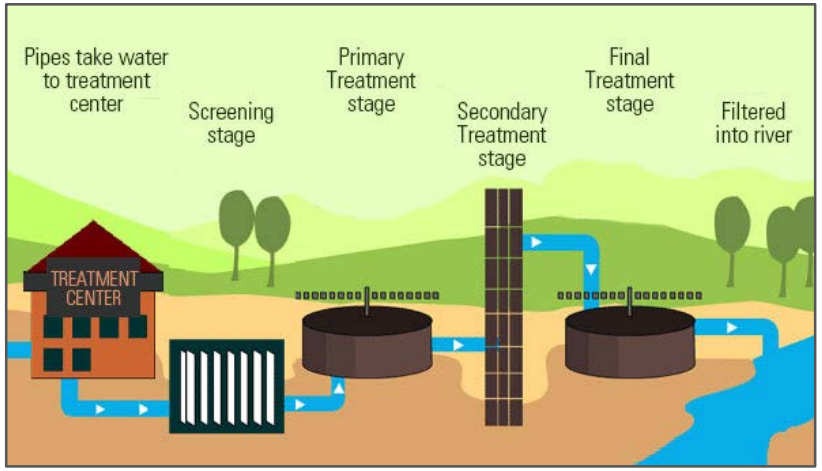


Image: https://eschooltoday.com/learn/sewage-treatment-process/

MISSISSIPPI-ATCHAFALAYA RIVER BASIN

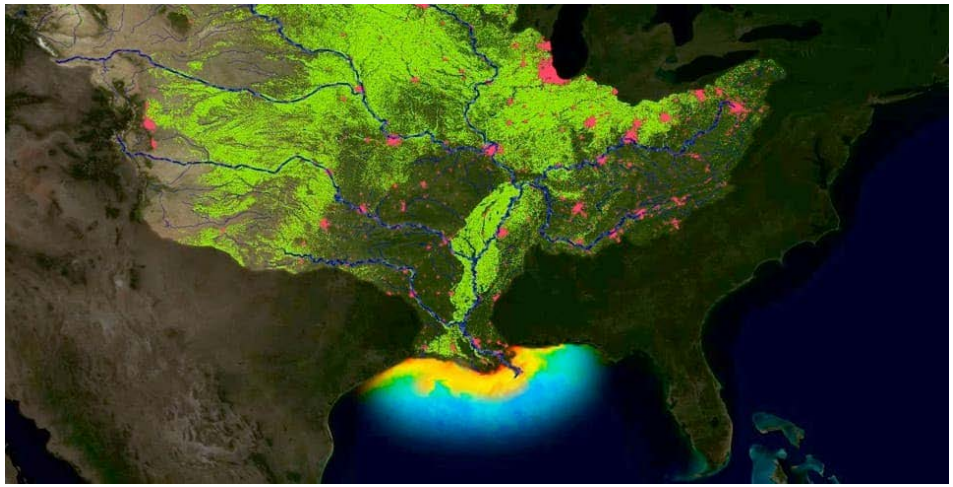
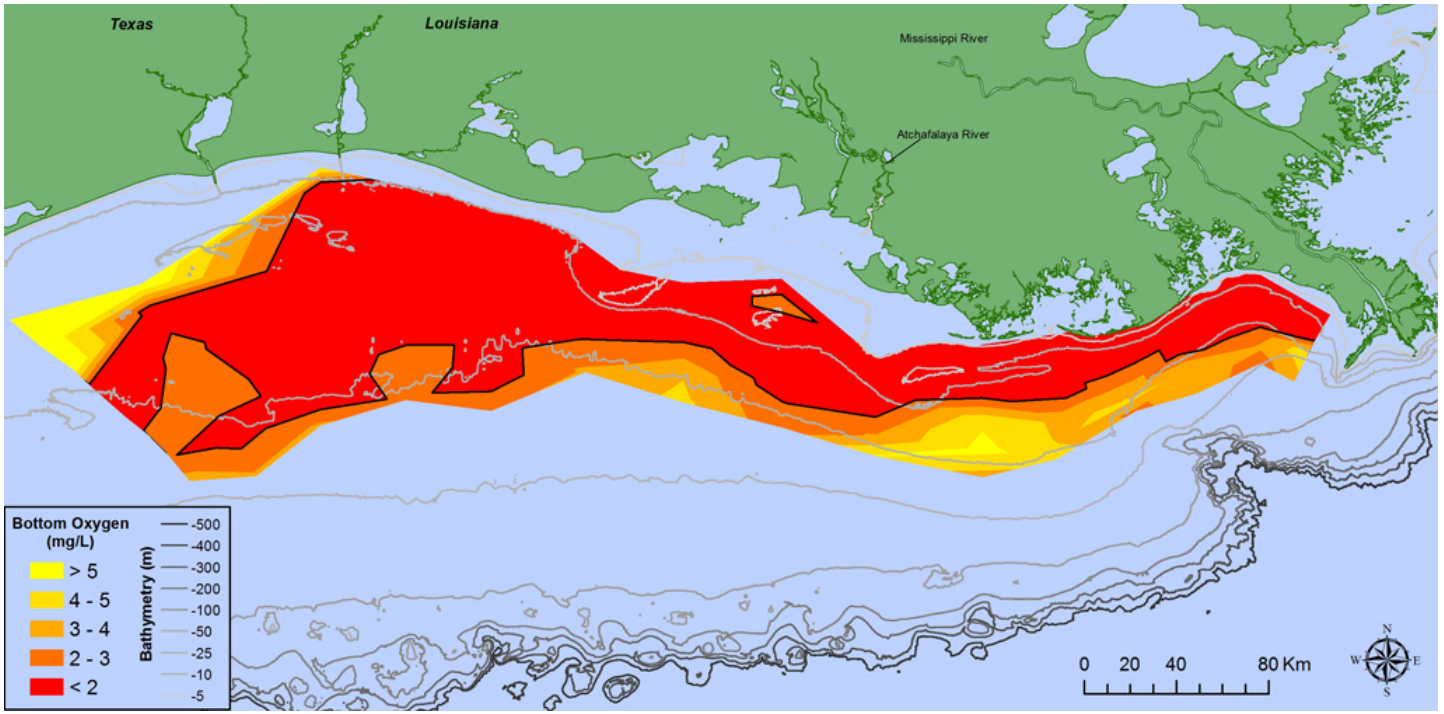


Image: https://coastalscience.noaa.gov/news/noaa-forecasts-very-large-dead-zone-for-gulf-of-mexico/

41% of contiguous U.S. drains to the Gulf of Mexico.

Runoff from farms (green) and cities (red) carries nutrient-rich water to the Gulf of Mexico. A large hypoxic or “dead zone” forms during summer each year.

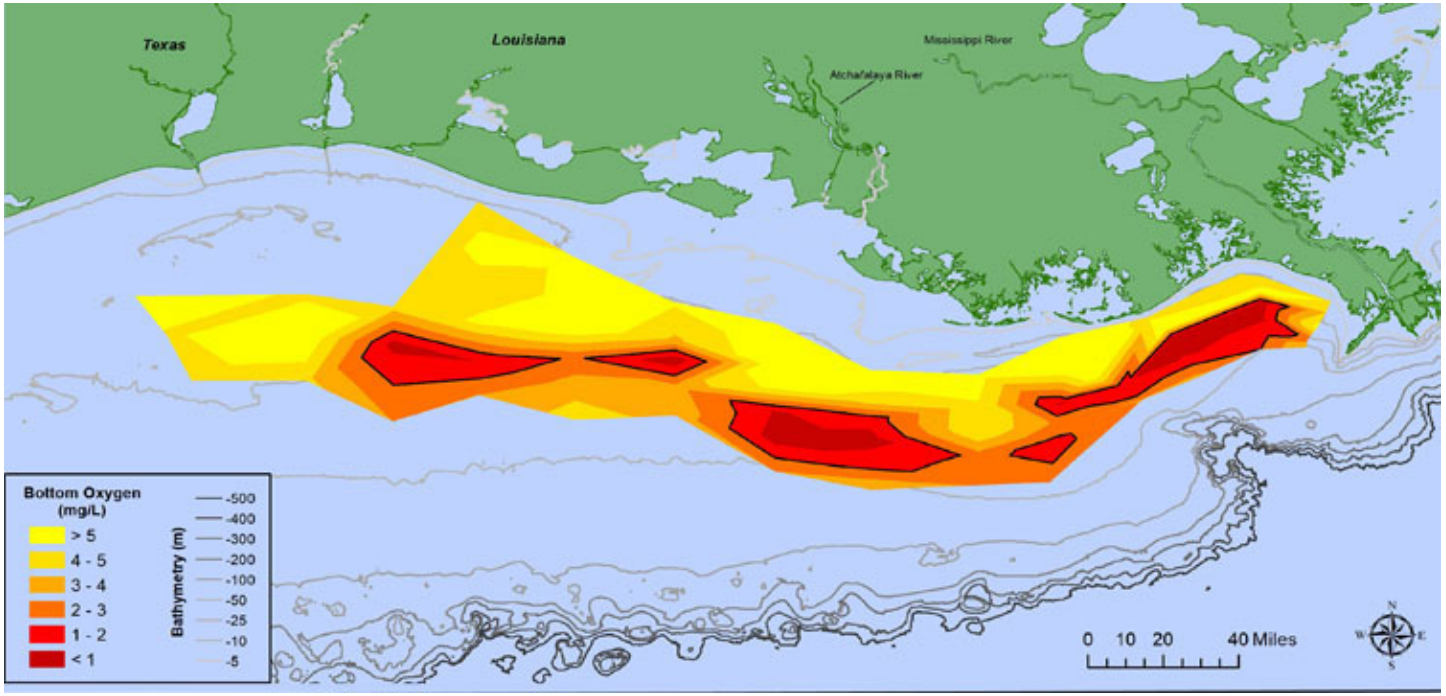
2017



Source: https://gulfhypoxia.net/research/shelfwide-cruise/?y=2017

2017: 8,776 sq. miles (5.6m acres); largest size measured to date since the standardized mapping cruises began in July 1985.

2020

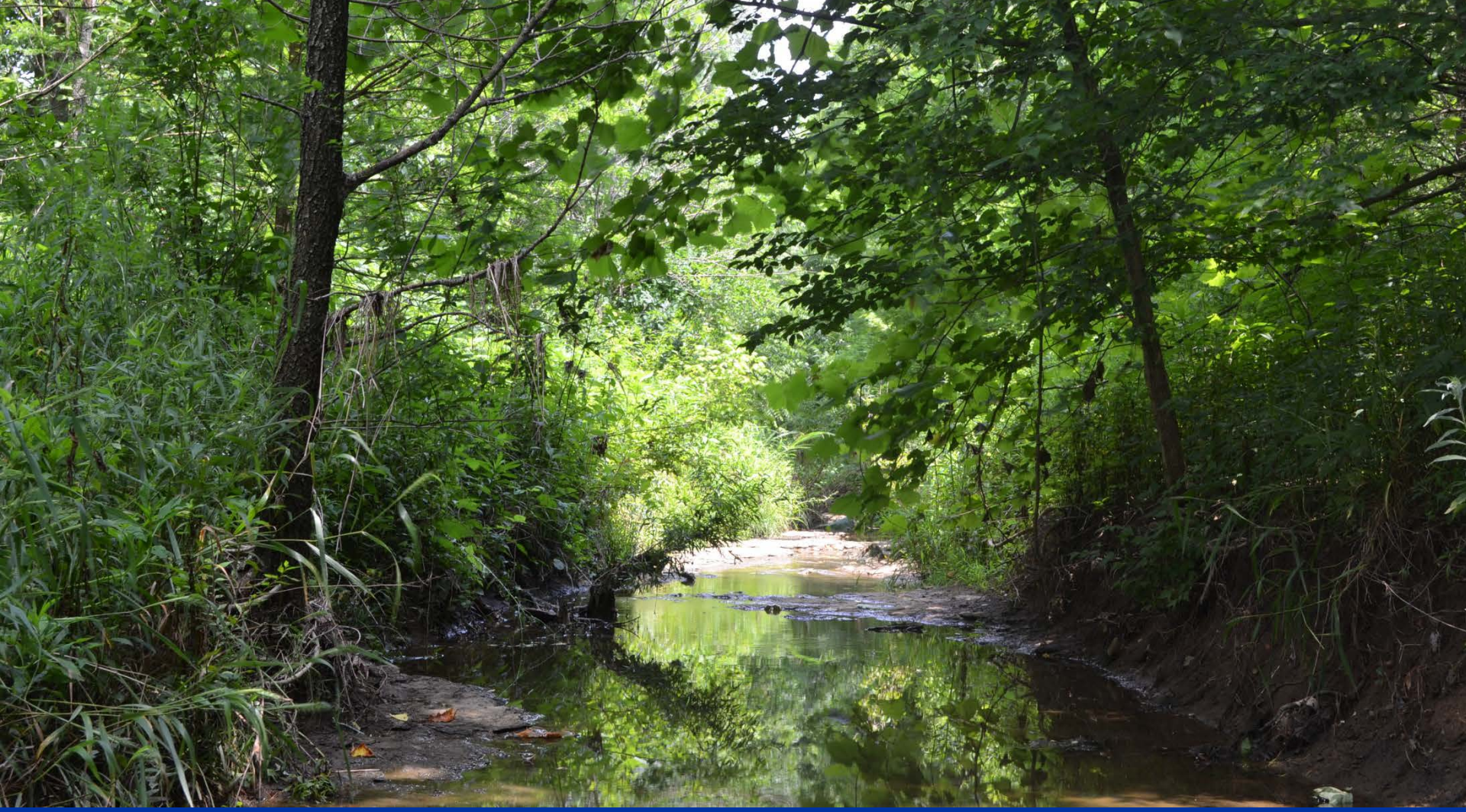


https://www.noaa.gov/media-release/smaller-than-expected-gulf-of-mexico-dead-zone-measured

2020: 2,116 sq. miles (1.4m acres); 3rd smallest in 34 years of surveys; due to mixing by Hurricane Hanna


KAP LYN DAWN
BAKERFIELD

When you're fertilizing the lawn, you're not just fertilizing the lawn.



Kentucky Waterways

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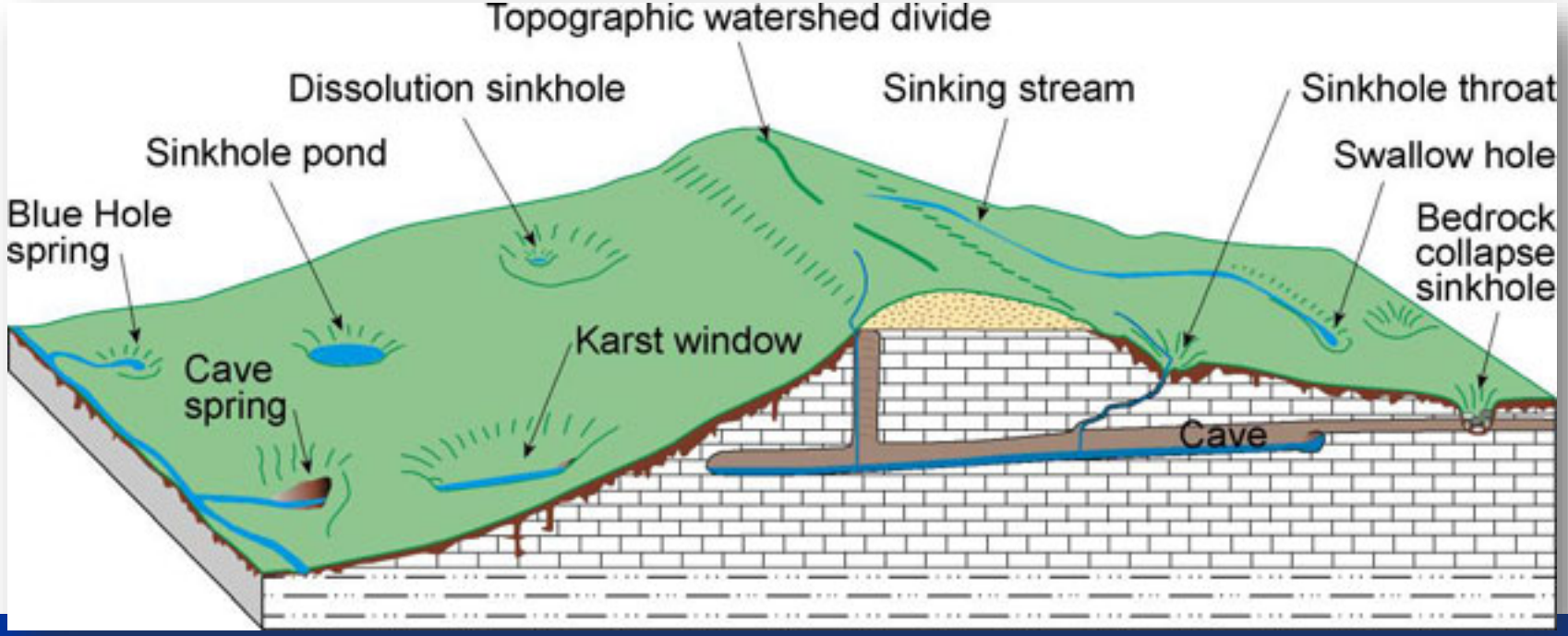
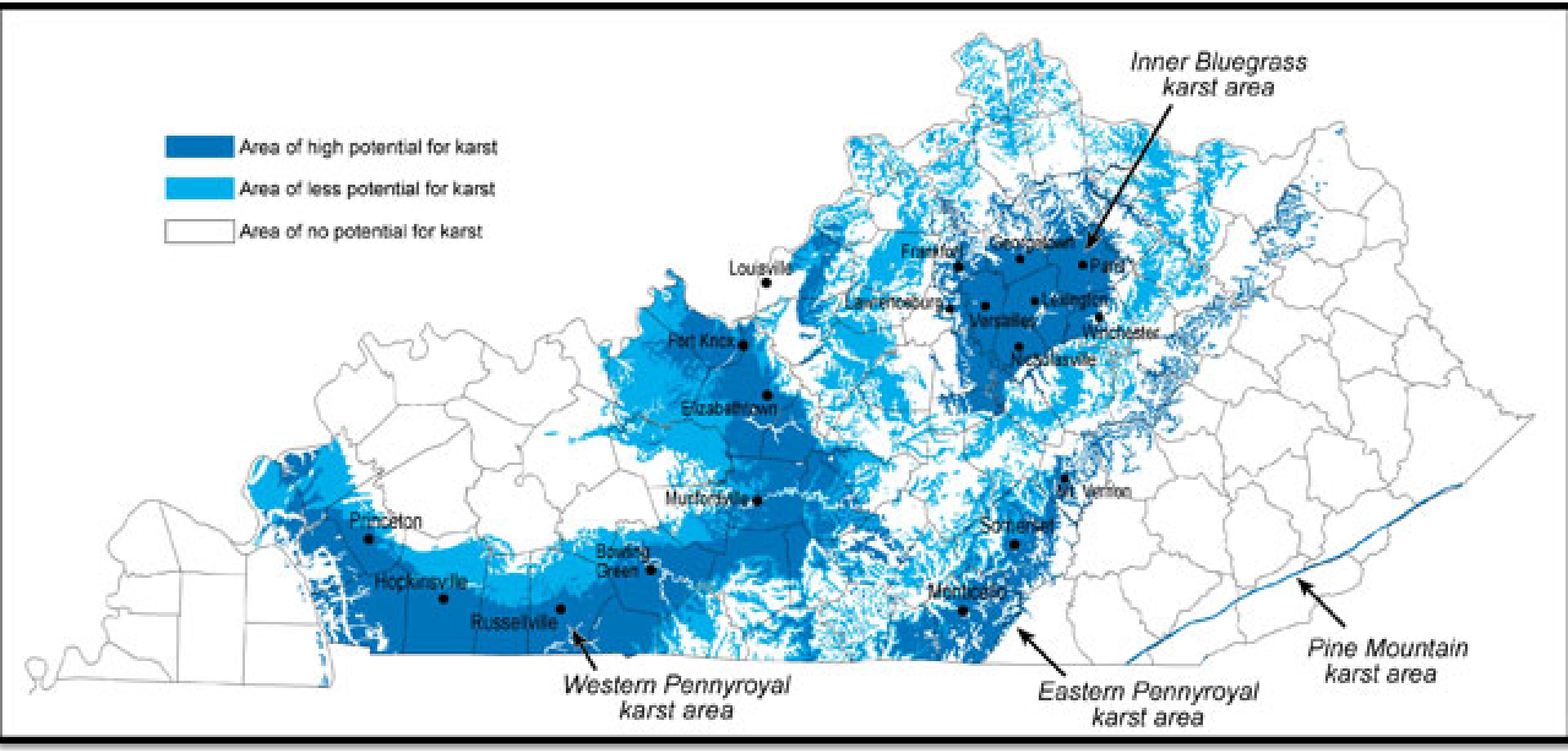
SENSITIVE AREAS

- Where ground water is near the surface or easily accessed (wells, sinkholes, porous soil, etc.)
- In karst regions, there may be little infiltration into the soil before contaminants reach ground water



KARST REGIONS OF KENTUCKY



If it's on the ground, it's in your water.

SOLUTIONS FOR A HEALTHY STREAM

1) Plant in the buffer zone

BENEFITS OF HEALTHY STREAM BUFFERS

- Filter runoff water
  - Slows down water, increases infiltration
  - Dissolved pesticides can be filtered
- Uptake excess N-P-K from adjacent areas
- Protect streambanks from erosion
- Reduce flood damage
- Provide shade to streams
- Provide wildlife habitat
- Improve aesthetics

SOLUTIONS FOR HEALTHY STREAMS

1) Plant in the buffer zone
2) Don’t mow in the buffer zone (see #1)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SOLUTIONS FOR HEALTHY STREAMS

1) Plant in the buffer zone
2) Don’t mow in the buffer zone
3) Keep your septic system in good condition AND watch what you flush


natural care
SENSITIVE WIPES

SOLUTIONS FOR HEALTHY STREAMS

1) Plant in the buffer zone
2) Don’t mow in the buffer zone
3) Keep your septic system in good condition AND watch what you flush
4) Pick up litter and don’t dump anything down storm drains

- Educate family members not to litter.
- Be part of a community clean-up or organize one yourself.

SOLUTIONS FOR HEALTHY STREAMS

1) Plant in the buffer zone
2) Don’t mow in the buffer zone
3) Keep your septic system in good condition AND watch what you flush
4) Pick up litter
5) Don’t change the path of streams

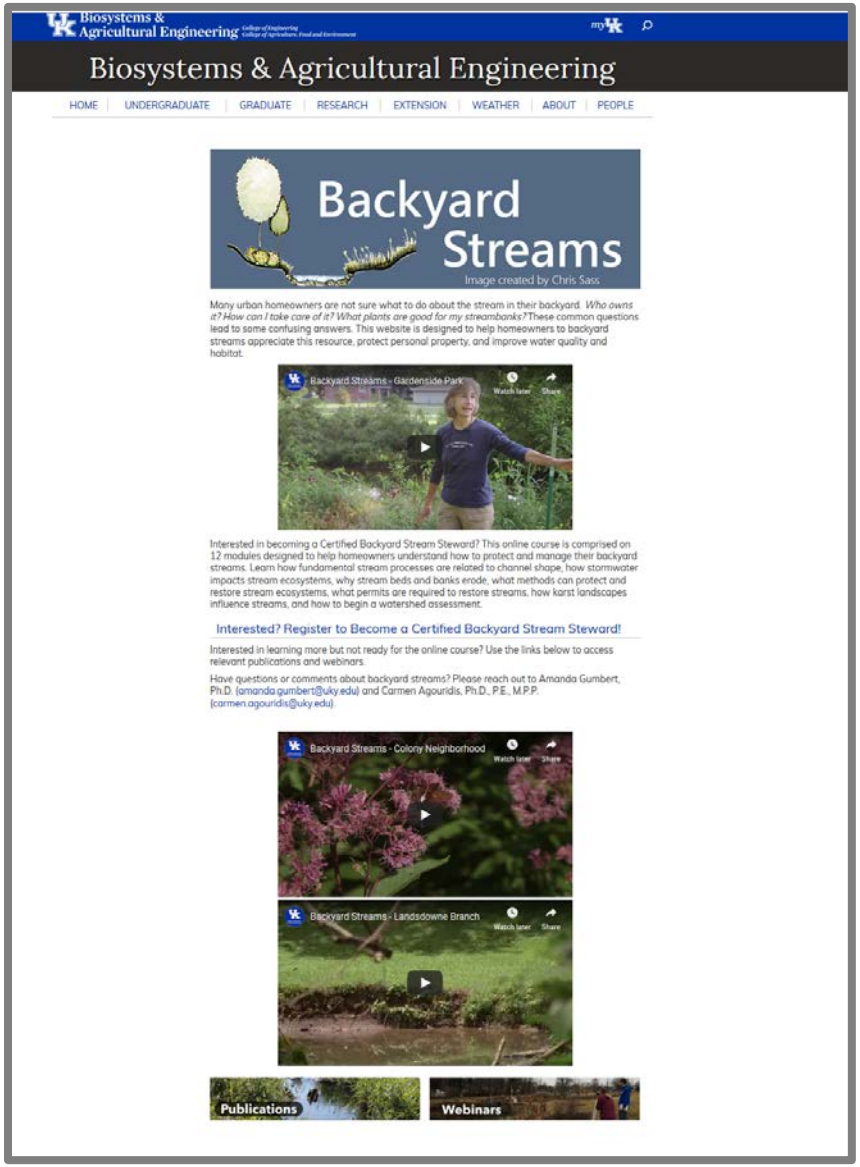
SOLUTIONS FOR HEALTHY STREAMS

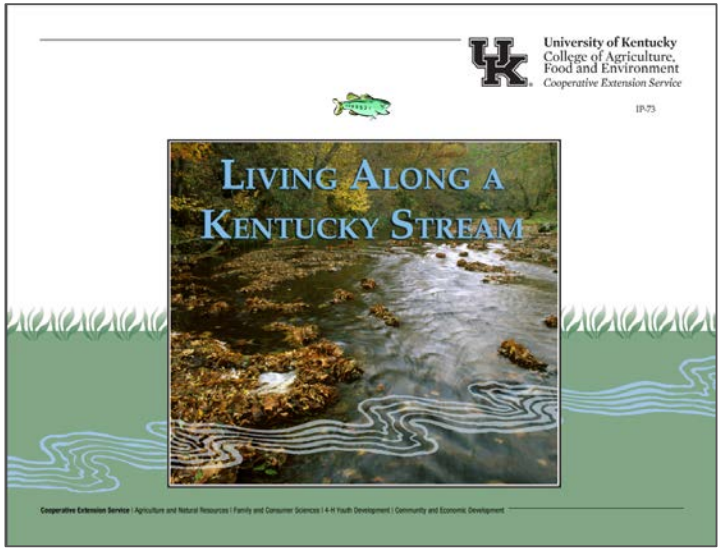
1) Plant in the buffer zone
2) Don’t mow in the buffer zone
3) Keep your septic system in good condition AND watch what you flush
4) Pick up litter
5) Don’t change the path streams
6) Get outside and enjoy Kentucky’s water resources!

“Water is the most critical resource issue of our lifetime and our children's lifetime. The health of our waters is the principal measure of how we live on the land.”

Luna Leopold

WWW.UKY.EDU/BAE/BACKYARDSTREAMS





Online Course - Canvas

File Edit View History Bookmarks Tools Help

Backyard Streams Program

https://canvas.instructure.com/courses/1340900 80% Search

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Backyard Streams Program

Edit

Many urban homeowners are not sure what to do about the stream in their backyard. Who owns it? How can I take care of it? What plants are good for my streambanks? These common questions can lead to some confusing answers. This course is designed to help homeowners with backyard streams appreciate this resource, protect personal property, and improve water quality and habitat.

Welcome to the Backyard Streams Program!

Welcome to the University of Kentucky Cooperative Extension Service's Backyard Streams program. This program is comprised of 12 online modules that are designed to help homeowners understand how to protect and manage their backyard streams. After successfully completing each module, you will become a Certified Backyard Stream Steward.

To learn more about our Backyard Stream program, visit www.uky.edu/bae/backyardstreams .

Import from Commons
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Coming Up View Calendar

Nothing for the next week

Course Topics

- Backyard Stream Basics
- Challenges for Urban Streams
- Fluvial Geomorphology 101
- Ecosystem Services 101
- Streambank Erosion 101
- Riparian Buffer Vegetation 101
- Stream Restoration 101
- Stormwater 101
- Low Impact Development 101
- Permitting 101
- Karst 101
- Watershed Assessment 101

Certificate of Completion

presented to

Tammy Barnes

for completing stream science learning modules as part of the
University of Kentucky Cooperative Extension Service
Backyard Streams Program

August 27, 2018

Amanda A. Gumbert, Ph.D.
Extension Water Quality Liaison

Carmen T. Agouridis, Ph.D., P.E., M.P.P.
Extension Associate Professor

College of Agriculture, Food and Environment
Biosystems and Agricultural Engineering Extension

Virtual Farmer Shop Talks (Archived)

https://bit.ly/virtualshoptalks

KYH2O Podcast

- Available on iTunes and Podbean

YouTube channels

- UK Watershed Protection and Restoration
- UK Turfgrass Science

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