FISH KILLS

Some of the most common calls fishery management agencies receive from the public are reports about dead or dying fish in a water body, or fish kills. A fish kill is a common but complex phenomenon. Contrary to popular belief, fish kills are seldom caused by pollution or other human activities. Instead, changes in environmental factors such as temperature, dissolved oxygen, salinity, and acidity are often to blame for fish kills. Changes in some of these factors might not be lethal by themselves, but when combined, can cause a fish kill. In many reported fish kills, it is not possible to determine the cause.

WHAT TYPICALLY CAUSES FISH KILLS IN LOUISIANA?

In Louisiana and other areas of the southern United States, fish kills occur most frequently in the summertime. The most common cause of summertime fish kills is low levels of dissolved oxygen in the water. Fish need oxygen to survive and almost all fish get their oxygen from the water. When dissolved oxygen levels are low, fish can suffocate and die.

Unusually cold temperatures can also cause fish kills in Louisiana and other areas of the southern United States. Some of Louisiana's coastal species, including spotted and sand seatrout (a.k.a. "white trout") and red and black drum, and a few freshwater species such as shad are sensitive to severe cold weather. Water temperatures below 40°F for extended periods may kill fish. Fish are especially sensitive if temperatures drop quickly; however, if they have a chance to acclimate and move to warmer water, they have a greater potential to survive.

Sometimes fish kills don't occur right after dissolved oxygen levels decrease or extended periods of extreme cold. However, these events can stress fish to a point where they become more susceptible to parasites or diseases, which can ultimately kill fish.

WHAT IS DISSOLVED OXYGEN?

Dissolved oxygen is simply the amount of oxygen dissolved in the water. Dissolved oxygen in surface water diffuses from wind and wave action across the water's surface. Additionally, aquatic plants produce oxygen through photosynthesis in the water, similar to how the oxygen we breathe on land is produced by plants through photosynthesis.

HOW DO I REPORT A FISH KILL?

Call the number associated with the location of the fish kill on the map below or just call **800-442-2511**.

Be prepared to report as much of the following information as possible:

- Your name, email address, and phone number
- Date and time you noticed the fish kill
- Specific location of the fish kill (parish, waterbody, landmark, and/or GPS coordinates)
- Approximate number of fish and species
- Estimated date the fish kill occurred
- Whether fish are still dying
- Other agencies you contacted

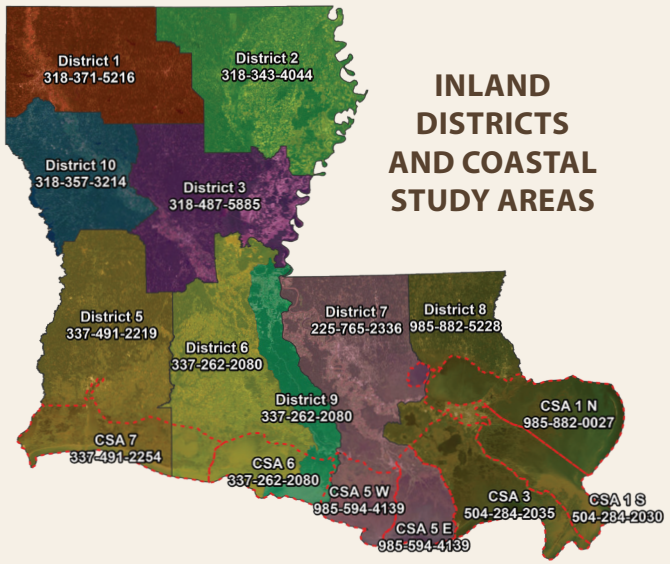
Other useful information:

- Is aquatic vegetation present? How much?
- Was the fish kill man-induced (commercial fishing in the area, any evidence of pollution such as an oil sheen, etc.)?
- Photos
- Is the site accessible by land or boat only?

HOW DO WE RESPOND TO A REPORTED FISH KILL?

The information provided by callers is immediately relayed to LDWF biologists who investigate the kill.

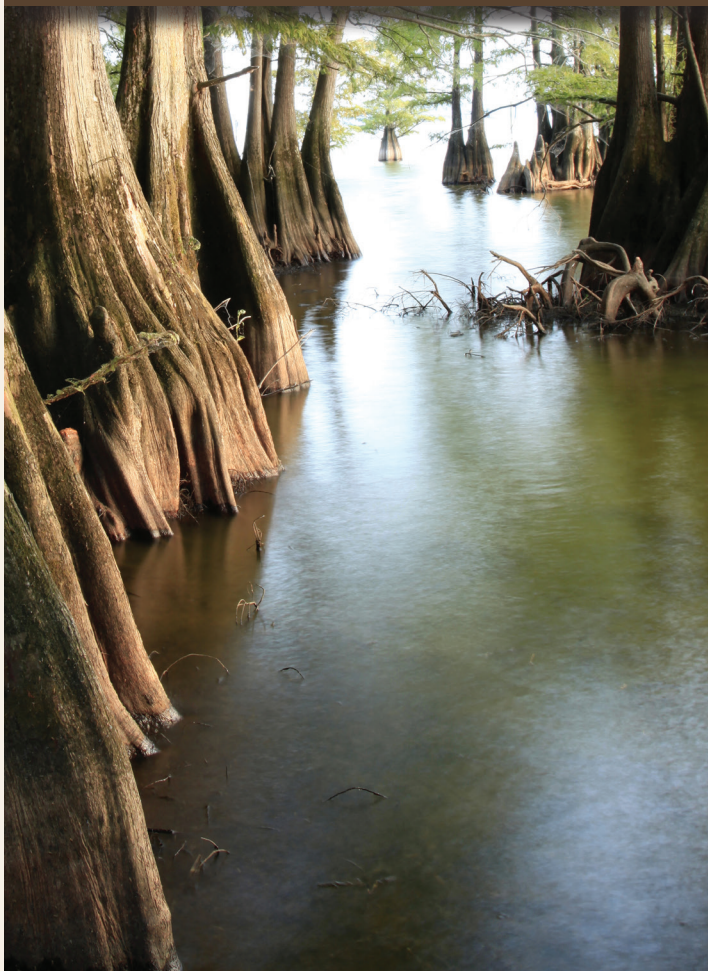
Fish kills, diseased fish, or fish with high numbers of parasites may indicate a localized environmental problem. Biologists and managers use fish health information when developing management strategies to better preserve and protect Louisiana's aquatic environment.



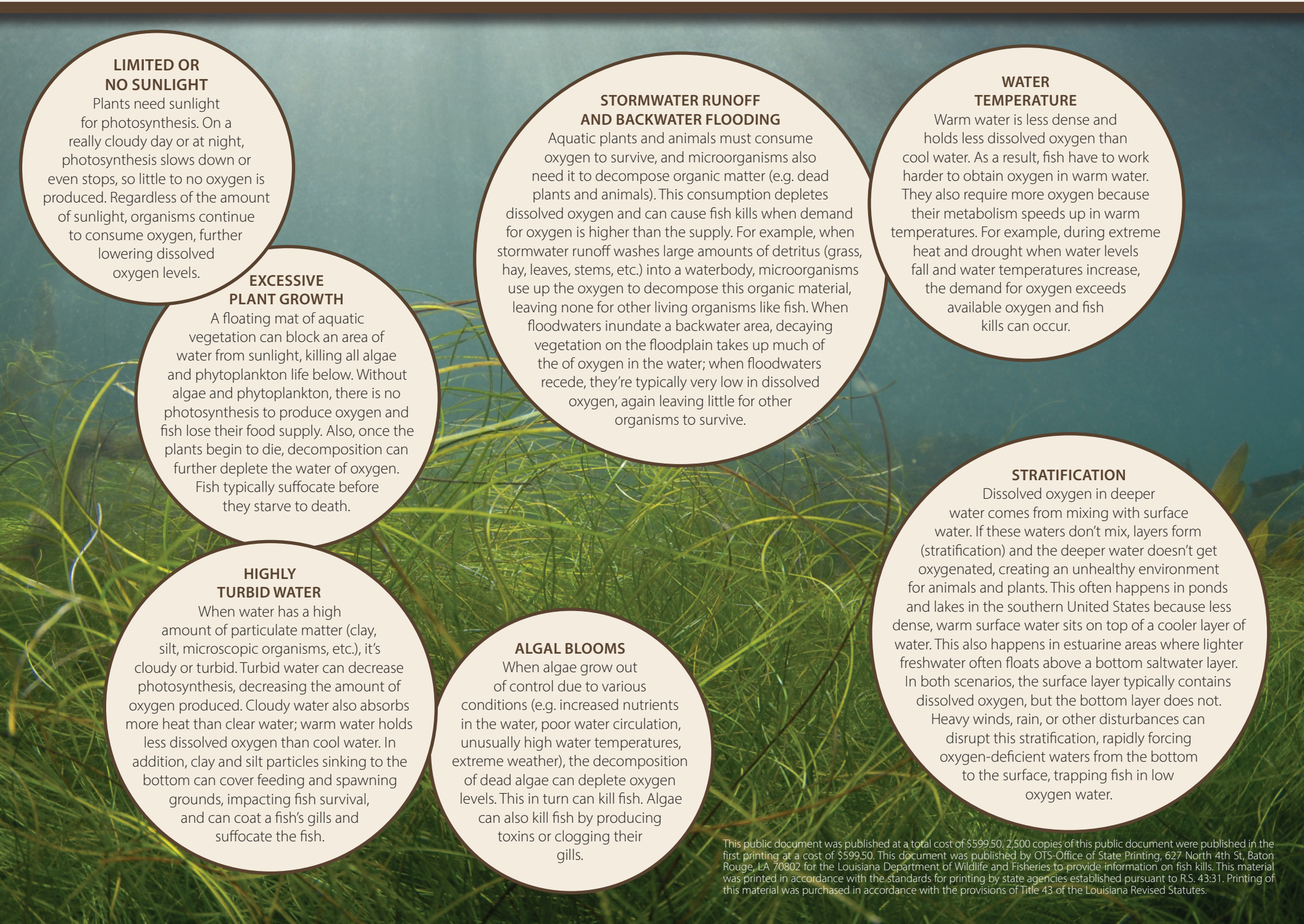
INLAND DISTRICTS AND COASTAL STUDY AREAS

LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES

UNDERSTANDING FISH KILLS



WHEN CAN DISSOLVED OXYGEN LEVELS DROP AND LEAD TO A FISH KILL?



LIMITED OR NO SUNLIGHT

Plants need sunlight for photosynthesis. On a really cloudy day or at night, photosynthesis slows down or even stops, so little to no oxygen is produced. Regardless of the amount of sunlight, organisms continue to consume oxygen, further lowering dissolved oxygen levels.

EXCESSIVE PLANT GROWTH

A floating mat of aquatic vegetation can block an area of water from sunlight, killing all algae and phytoplankton life below. Without algae and phytoplankton, there is no photosynthesis to produce oxygen and fish lose their food supply. Also, once the plants begin to die, decomposition can further deplete the water of oxygen. Fish typically suffocate before they starve to death.

HIGHLY TURBID WATER

When water has a high amount of particulate matter (clay, silt, microscopic organisms, etc.), it's cloudy or turbid. Turbid water can decrease photosynthesis, decreasing the amount of oxygen produced. Cloudy water also absorbs more heat than clear water; warm water holds less dissolved oxygen than cool water. In addition, clay and silt particles sinking to the bottom can cover feeding and spawning grounds, impacting fish survival, and can coat a fish's gills and suffocate the fish.

ALGAL BLOOMS

When algae grow out of control due to various conditions (e.g. increased nutrients in the water, poor water circulation, unusually high water temperatures, extreme weather), the decomposition of dead algae can deplete oxygen levels. This in turn can kill fish. Algae can also kill fish by producing toxins or clogging their gills.

STORMWATER RUNOFF AND BACKWATER FLOODING

Aquatic plants and animals must consume oxygen to survive, and microorganisms also need it to decompose organic matter (e.g. dead plants and animals). This consumption depletes dissolved oxygen and can cause fish kills when demand for oxygen is higher than the supply. For example, when stormwater runoff washes large amounts of detritus (grass, hay, leaves, stems, etc.) into a waterbody, microorganisms use up the oxygen to decompose this organic material, leaving none for other living organisms like fish. When floodwaters inundate a backwater area, decaying vegetation on the floodplain takes up much of the of oxygen in the water; when floodwaters recede, they're typically very low in dissolved oxygen, again leaving little for other organisms to survive.

WATER TEMPERATURE

Warm water is less dense and holds less dissolved oxygen than cool water. As a result, fish have to work harder to obtain oxygen in warm water. They also require more oxygen because their metabolism speeds up in warm temperatures. For example, during extreme heat and drought when water levels fall and water temperatures increase, the demand for oxygen exceeds available oxygen and fish kills can occur.

STRATIFICATION

Dissolved oxygen in deeper water comes from mixing with surface water. If these waters don't mix, layers form (stratification) and the deeper water doesn't get oxygenated, creating an unhealthy environment for animals and plants. This often happens in ponds and lakes in the southern United States because less dense, warm surface water sits on top of a cooler layer of water. This also happens in estuarine areas where lighter freshwater often floats above a bottom saltwater layer. In both scenarios, the surface layer typically contains dissolved oxygen, but the bottom layer does not. Heavy winds, rain, or other disturbances can disrupt this stratification, rapidly forcing oxygen-deficient waters from the bottom to the surface, trapping fish in low oxygen water.

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