Community Fishing Bulletin

April 15, 2019

CATFISH DIEOFFS AT CFP WATERS – FINALLY AN ANSWER

For several weeks we have received reports of fish kills at our CFP waters. These mainly included only catfish in numbers ranging from 5-10 to 60-70 per day. Despite repeated sampling of the waters, we could find no consistent cause that could explain die-offs at several lakes simultaneously. Here are a few of the common causes of fish kills that we looked at:

Environmental Issues:	Fish Health Issues
pH: High pH can be caused by excessive algae or aquatic plants, and high pH levels can easily stress or kill freshly stocked fish.	**Parasites**: These can weaken or kill fish. There are microscopic (invisible to the naked eye) as well as macroscopic (visible to the naked eye) varieties.
Dissolved Oxygen (DO): Oxygen levels fluctuate often, but low DO levels can stress or kill fish, particularly in warmer weather. Some species, like carp & sunfish, are more resistant to low DO.	**Virus**: Much like a viral outbreak in humans (colds & flu), a viral outbreak in fish can be lethal. Some viral strains are species-specific, meaning they affect only one species, while others can infect and/or kill multiple species of fish.
Temperature: Trout will start dying when the water hits the mid to upper 70's, and Tilapia start dying when the water is in the 50's or lower. Oxygen is *inversely* linked to temperature, meaning warmer water holds less oxygen than cold water.	**Bacteria**: Bacteria are in the air, water, & soil, and as such can also be considered an "environmental issue". They can affect fish externally or internally and can either attack certain areas of the body or become systemic (spread throughout the body).
Algae/Plants: Excessive algae or plant growth can create high pH levels during the day when plants produce oxygen and low DO levels at night when plants respire.	**Stress**: Much like humans, fish can become stressed, particularly handling. Transporting fish in tanks or handling during catch-and-release can invoke a stress response.
Golden Algae: Can produce a toxin that kills fish.	

Wounds can also kill fish, such as those gained from bird strikes or during capture, handling, and/or release by anglers. Sometimes no one single factor causes a fish kill, but rather a combination of factors. We believe that to be the case here.

After examing tissues collected from CFP fish, we determined a combination of **two factors** are causing the die-offs:
1) a spore-forming parasite called *Henneguya ictaluri* weakens the fish by causing swelling/infection of the gills, and
2) a secondary stressor that kills the weakened fish. This secondary stressor can vary, but may include stress gained during transport or environmental factors (listed above) within the receiving waters.

This "one-two-punch" causes the infection to kill the fish slowly, leading to a steady die-off rather than a sudden one.
The microscopic parasite spores within the fish pose no threat to humans at all.

PLEASE BE A GOOD WITNESS WHEN REPORTING FISH KILLS

Unfortunately, we receive a lot of exaggerated information pertaining to fish kills. A good example is numbers of dead fish. While it's impossible to accurately count thousands of dead fish on the surface, there is a huge difference between 30 dead fish and 3,000 dead fish. Another commonly mis-reported issue is whether or not there are multiple species. This makes it difficult to determine the scope and severity of a fish kill, so here are key factors to consider when reporting a fish kill:

- **Numbers** – Be specific. If you count 20 dead fish, report 20 dead fish. Don't assume there's more than you see.
- **Single or Multiple Species** – Look closely. Are there bass, bluegill, and other species, or is it just one species?
- **Behavior of Visible, Living Fish** – Are there fish visibly struggling to swim or disoriented?
- **Photos** – Most people have cell phones with cameras. Take some pictures to back up your claims.

Once you have all of this information, please send your photos and counts over to our CFP Specialist, Lacey Schmitt, at lschmitt@azgfd.gov and we will look into it ASAP.

We'll post another bulletin with some helpful hints when it comes to reporting fish kills.
Like any investigation, please be as factual as you can and don't exaggerate.

For more information contact Scott Gurtin at sgurtin@azgfd.gov 623-236-7262 Or visit us at www.azgfd.gov