



Commonwealth of Massachusetts

# Division of Fisheries & Wildlife

**MassWildlife**

Wayne F. MacCallum, *Director*

William A. Terry  
385 Turkey Hill Road  
Belchertown, MA 01007

September 30, 2013

Dear Mr. Terry:

In response to your letter dated September 6, 2013 requesting information on the contributing factors that caused the fish kill this past July at Lake George, I offer the following summary: the Division of Fisheries & Wildlife (DFW), the lead agency for coordinating fish kill response for the state, was first notified about the kill on 7/21-7/22 when reports of dead fish were made to our Field Headquarters as well as our Environmental Law Enforcement radio room in Boston. At that time, witnesses to the kill reported 100's of dead fish all of the same species, white perch (Lake George experienced a similar white perch kill in September, 2012). When we talk to a witness of a fish kill, one of the key questions is the species composition, basically is it one species involved (or dominant) or multiple species. Historical fisheries surveys have revealed that Lake George hosts about a dozen different species of common warmwater fish. If the lake were exposed to a pollutant or toxic substance, we would expect to see all these species (and year classes) impacted at about the same rate. When it is dominated by a single species, we generally attribute the kill to a natural event such as spawning stress or an epizootic (a bacteria, virus, etc. that attacks a specific species or family of fish). Generally, when this is the case, a field investigation is not warranted since the kill does not pose a public health threat. Although the witnesses reported that the kill was in fact dominated by one species, a DFW Fisheries Biologist did investigate on 7/22 and confirmed that there were many dead white perch in the 6-8" range that had been dead a couple of days. On 7/29/13, the Massachusetts Department of Environmental Protection (DEP) received a report about the kill and contacted DFW to inform us they would be conducting an investigation. DFW again sent a biologist to investigate since the latest eye witness report was that the species composition of the kill had changed from one species to multiple species. DEP were on site 7/29 and 7/30 while the DFW biologist investigated on 7/29. DFW confirmed that the species composition had in fact shifted to a kill dominated by small yellow perch with very low numbers (less than 10) of four other common species (including the original white perch). DEP's observations showed no evidence of pollution and their water quality readings (dissolved oxygen, temperature and pH were within normal ranges). Due to the fact that the lake had been treated with aquatic herbicides approximately one week before the fish kill was first reported (7/15/13), and the lake had been experiencing unusually high water temperatures due to an extended heat wave, it has been suggested that this activity in fact caused the

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subsequent kill. The manufactures of the chemicals in question do recommend that whole lake treatments not take place since the decaying vegetation could be an issue relative to dissolved oxygen conditions but does not have specific recommendations relative to water temperature. Aquatic herbicides can kill fish in one of two ways, by having a direct toxic effect generally as a result of over application, or as a result of rapid decay of large amounts of vegetation to the point where the dissolved oxygen (which is already suppressed during higher water temperatures) can drop to lethal levels. Under either of these scenarios, we would expect to see more than one species involved in the resultant fish kill. Other states which have begun to look at the contributing factors in summer fish kills have identified a number of bacteria which are always present in the water, but can multiply rapidly as the water warms. Generally, these bacteria appear to target specific species of fish (for example, perch) and can cause a fish kill usually as a result of a secondary infection in fish that are already stressed (in this case, high water temperatures causing low dissolved oxygen levels). As investigated, it isn't possible to ascertain the exact cause of the kill, since, being dominated by one species; it was not perceived as a public health concern. The kill was likely the result of a combination of factors, namely increasing bacterial counts as a result of the extremely high water temperatures and resultant lower dissolved oxygen levels which may have been exacerbated by the decay of the vegetation. Regardless of what caused this kill, the agencies involved in licensing and permitting herbicide applications and the fish kill committee will coordinate to make sure that we are continuing to do everything within our power to make sure all lake management techniques are conducted in the safest possible manner. In the meantime, the lake committee may want to recommend curtailing herbicide applications during periods of extended high water temperatures. I hope this summary was helpful and I would be happy to answer any questions you may have.

Sincerely,



Richard A. Hartley  
Fish Kill Coordinator

Cc. Albe Simenas, DEP  
Michael McClean, DAR