Water levels and temperatures define narrow window of larval fish phenology in Kentucky Lake.

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Understanding larval fish phenology in dynamic systems provides managers with important indicators of sensitive fish life history patterns. Environmental factors are important for success of larval fish by influencing spawning and development. Water levels and temperature have been shown to influence the timing of the spawn in Kentucky Lake. Samples were taken within the southern 30 km of Kentucky Lake April-May of 2014, 2015, and 2016 to assess the larval fish community. Samples were collected using tandem larval pushnets (net=0.5m^2, mesh=1mm), fish were enumerated in the lab and identified to family. The timing of first detection occurred around the same period (April 17-April 25) in 2014, 2015, and 2016 for most taxa. Water temperature and headwater elevation were similar across these years and larval fish were detected within the same 9-day period each year. Using Kentucky Long Term Monitoring Program data from the last 30 years, we examined the patterns of water levels and temperature to detect changes in environmental variables. Changes in patterns of long term records could mean that the phenology of larval fish has changed and that resources available to these fish communities may differ over time. Phenology can be used as a harbinger of climate change and may be important for managing potential effects of invasive species.