



The Frogs Update

 Minnesota Pollution Control Agency

Welcome to the Minnesota Pollution Control Agency's "Frogs Update." The Update is intended as a vehicle for communicating the current status of field work related to the investigation of malformed frogs in Minnesota. Readers include land owners around study sites, county water staff, and anyone else who is involved or interested in the progress of this work.

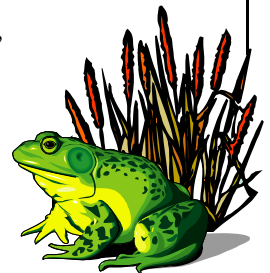
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Fall is definitely in the air! By now most of the leopard frogs are on their way back to their overwintering locations. With the cooler weather come thoughts of report writing and data analysis for the MPCA frogs team. We hope to have a field report compiling 1997, 1998 and 1999 survey data completed by next spring.

We are also working with hydrologists from the U.S. Geological Survey to combine our data and start to analyze the huge quantity of information gathered thus far. This year we have collected quite a bit of field data from a variety of sites, including our network of "intensive" sites which we've worked with for the past several years. With this data we plan to show the types and frequencies of malformations over a three-year span, as well as similar data on sites which we have visited less frequently. This will be combined with USGS data, and with results from site water and sediments collected at study sites, which were analyzed for metals and pesticides as well as hydrologic data.

We are also receiving data from other researchers who have been cooperating with us on several different projects such as studies of ultraviolet penetration into site water, parasite data from Minnesota frogs, and information on the possible presence of viruses in Minnesota frogs. It will be very interesting to see all the results come together.

In September, the MPCA frog investigation team and the New Country School kids along with teacher Cindy Reinitz were involved in the filming of a documentary at the site where the kids first reported the malformed frogs in 1995. Public Policy Productions, Inc., of Palisades, New York is producing the film. The documentary recreates a modern-day version of Mark Twain's journey along the Mississippi River, capturing how the "river shapes and defines the lives of people who live along its banks" according to the producers. They wanted to include a small portion on malformed frogs at this site since the frogs are overwintering in the Minnesota River, which is a main tributary to the Mississippi River. The Minnesota also contributes a large portion of sediments and suspended materials in the Mississippi each year, thus altering its appearance and condition. I believe they were going to shoot some aerial photos showing the rivers connecting and the resulting change in color. They didn't give a specific date that the documentary would be aired, but did say it would be out in about a year.



Other news on malformed frogs: You may have seen or heard news reports recently about new research findings, published in October by some of our federal partners in a national science journal. The National Institute of Environmental Health Sciences has shown that frog embryos grown in water from ponds with abnormal frogs develop abnormalities in the laboratory, while those grown in water from “normal” sites do not. They’ve been continuing that work since 1997, and the recent papers recap progress to date. Although they have not identified all the compounds in the water which cause this effect in the lab, they have identified some pesticides and fungicides. Some of the chemicals appear to affect the frogs’ thyroid gland, which is an important regulator of amphibian development.

While it’s not certain what these findings mean, it does underline the need to continue these studies. When west-coast researchers reported last spring that parasites could cause some of the deformities in some species, the findings made national news, and many people assumed “The Cause” for malformed frogs had been identified and we could all quit worrying about it. Not so, as these recent studies point out. Moreover, the MPCA and our research partners have looked at parasites as a potential cause for some time, and so far parasites do not seem to be involved in most malformed frogs studied in Minnesota.

Most scientists have thought all along that it’s unlikely a primary cause will be identified. Rather, it’s looking more like several potential causes could be to blame. Are they all linked by a root cause, for example some basic change in the environment? The answer is unknown yet. In addition, we need to look at whether chemicals in the environmental are interacting in a new way, or whether different chemicals can affect the frogs in similar ways. The research continues. In the meantime, we’ll continue to keep you updated in future editions of the *Frogs Update*.

Have a good winter!

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The Frogs Update is a publication of the Minnesota Pollution Control Agency. To be added to the mailing list, please contact Sue Kersten at (800) 657-3864, or by e-mail at susan.kersten@pca.state.mn.us.

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