

EPA and Mississippi MDEQ sediment sampling post Katrina woefully inadequate

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Sediment sampling performed by the EPA and Mississippi Dept. of Environmental Quality (MDEQ) one month after Hurricane Katrina hit was not done in a manner that could properly assess the extent of toxic pollution spread by the Katrina storm surge.

It is understood that both EPA and MDEQ had limited resources and a shortened timeframe to perform sampling and issue a report sampling this report. However, the manner in which sampling was performed nullified the usefulness of the data collected.

Samples taken were only indicative of conditions on the particular day they were collected, and there were only a few locations where duplicate samples were taken, and they were still on the same day. These data only provide a very brief snapshot of conditions along the coast, and do not allow for the potential of outliers in the data or unaccounted confounding factors. Only multiple sampling events over time can counter these potential effects. The more sampling events over greater amounts of time, the more accurate data becomes.

Sampling for dioxin and dioxin-like compounds was even more limited. EPA and MS DEQ are in essence attempting to make judgments about dioxin levels for the entire Mississippi coast using just five samples. **The data collected from these samples are not sufficient to make any sort of determination regarding the water quality of Mississippi waterways.**

While not specifically part of this study, sampling done near the DuPont DeLisle plant was also insufficient. Prior to Katrina, this facility was one of the largest producers of dioxins in the entire country, and a source of much concern in the community. Shoreline sediment sampling was done near the facility, but not in locations that would provide accurate data regarding dioxin contamination. Storm surge moved sediment north and west, while the EPA tested sediments south and east of the plant. This would have surely had an effect on sampling results, and serves as another example of the EPA's inadequate reaction to the devastation of hurricane Katrina.

Lack of Historical Data and Other Basic Research Needs

The report states in the Introduction:

“The data generated from this study presents a preliminary picture of the levels of targeted pollutants in the systems, and will be useful to the State of Mississippi and EPA as additional studies are planned to assess water, sediment and fish/shellfish conditions in each of the four major bay systems included in the study. The results of this study may be used to develop a targeted water quality monitoring study. However, the study was not designed to identify specific pollutant sources within each system or provide definitive information on the potential long term effects on water quality from Hurricane Katrina.”

If the EPA and MDEQ plan on assessing the water, sediment, and wildlife parameters, and particularly if they wish to determine what effects Hurricane Katrina had on them,

the agencies must compare any data collected to pre-hurricane levels. This was not done in this report. The comparison of data collected during the most recent sampling event and historical monitoring reports could identify any increasing trends or abnormal data (i.e. the complete absence of a contaminant in an area known to have had historically high concentrations). On its own, this report cannot provide even preliminary indications as to how Katrina affected the water quality of coastal Mississippi.

The report also uses a number of questionable screening levels and other parameters. It is not understood why NOAA SQUIRTs were used in place of EPA sediment screening values. The report also used flawed information regarding dioxins, referring to the 1993 evaluation instead of a more complete and recent reevaluation from 1999. The evaluation of several other compounds was also affected by a lack of research. The EPA apparently had no time to perform literature searches for many compounds, limiting the usefulness of the study to the general public as well as the report's own conclusions.

Timing of Study

The sampling that occurred during the course of this study took place approximately one month after the hurricane initially impacted the area. It is likely that peak concentrations of many harmful contaminants occurred in the immediate aftermath of the storm and then decreased slowly over time. It is understood and appreciated that in the days following the storm water quality sampling was not a top priority of either state or federal agencies. However, by the time that sampling began for this study, enough time had elapsed to make it impossible to even begin to estimate the potential concentrations of many harmful contaminants during the first days after the storm. For many of the contaminants detected during this study, these brief spikes will have had greater implications to human health and wildlife than the long-term averages that the data in this study are better suited to begin establishing.

Identification of Potential Sources

EPA and MDEQ note that sampling stations were determined by a combination of existing monitoring stations and the proximity to potential sources. The report does not note what any of these potential sources may be, which complicates efforts to evaluate sampling methods and the data produced by that sampling. Correspondence with the Sierra Club indicates that sampling may not have occurred near sources, or when it did it was in ways that minimized the apparent effects of the storm such as sampling on the side opposite of where the storm would have pushed contamination. It is obvious that sampling did not occur in proximity to some potential sources, such as dredged sediment disposal areas.

Potential Effects of the Storm on Sediment Disposal Sites

The EPA website lists three dredged material disposal sites off the coast of Mississippi: one near Pascagoula and two near Gulfport. The disposal of dredged material at such sites can concentrate many toxic compounds such as metals or persistent organic

compounds in a confined area. Large storm events such Katrina have the potential to disturb this potentially contaminated sediment and spread it to other areas. None of the sampling locations identified in the report were in close proximity to these sites, and the extent of the storm's effects on them are still unknown.

Potential Problems Identified by the Report

Three pollutants were found to exceed standards at a significant number of sampling stations. Surface water concentrations of arsenic and selenium in combination with high counts of fecal coliform in sediments indicate that water off the coast of Mississippi could potentially pose a risk to both humans and wildlife. Of course, these data suffer from the same limitations as the rest of the study, and making any conclusions as to their meaning are speculative at best.

Summary

The report compiled by MDEQ and the EPA is woefully inadequate to make even preliminary conclusions regarding water quality in Mississippi's coastal bays. The primary factor preventing it from doing so is a lack of data. The sampling produced too few data points for such a large geographic area over too short a time to insure that the data are of high enough quality to be used in a decision making process. The usefulness of the report is also hampered by a lack of historical data that it may be compared to. Without historical data the effects of Hurricane Katrina on coastal Mississippi's water quality can not be discerned. Such determinations are further complicated by the length of time separating the sampling event from the storm itself, which has prevented any sort of extrapolation of water quality just after the storm.

The report also fails to clearly define potential sources of contaminants and also provides no description of their locations. This is vital to establishing both the usefulness and accuracy of the data generated by the study. It is known that sampling did not occur near some known potential sources of contaminants: three sediment disposal sites off the coast of Gulfport and Pascagoula. Without more information it is difficult to characterize potential conditions at each of the sampling locations.

In conclusion, no meaningful conclusions as to the effects of Hurricane Katrina or current water quality conditions off the coast of Mississippi can be made based off the data produced within this report. If the EPA or DEQ wish to thoroughly evaluate either of these two issues, a longer and more comprehensive monitoring program needs to be established that considers the data in both historical and situational contexts. Until such a program is established, some of the most prevalent environmental questions surrounding Hurricane Katrina will remain unanswered.

Summary of Issues

- Sampling is very limited. 1 sample per station cannot give much useful information, even to make preliminary judgments

- There is no comparison to historical data- It is not clear if these levels are elevated compared to pre-hurricane levels. Critical if EPA and DEQ are to evaluate effects of hurricane on coastal water quality
- Report does not identify potential sources- no ability to verify that most impacted areas are being tested
- No sampling performed near sediment disposal areas
- No sampling of flooded areas near DuPont DeLisle plant
- Sampling taken after likely peak of contamination levels- peak critical to estimating effects on humans and wildlife
- Data indicates that arsenic, selenium, and fecal chloroform have the potential to cause long term problems
- More sampling needed