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# Heavy Metal Analysis of Sabine River and Toledo Bend Reservoir Bed Sediments

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# HEAVY METAL ANALYSIS OF SABINE RIVER AND TOLEDO BEND RESERVOIR BED SEDIMENTS

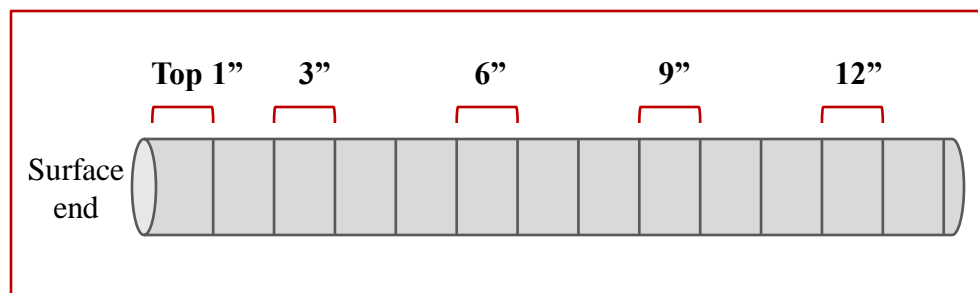
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## ABSTRACT

Core samples were collected from the Sabine River and Toledo Bend Reservoir beds, digested, and analyzed using atomic absorption spectroscopy for several heavy metals. The magnitude of heavy metal concentrations in the bed sediments and the pattern of deposition can help determine which heavy metals are present, the source of heavy metals found in the fish (bed sediment or water), and the source of the heavy metal pollution, if any: industrial, geologic, or atmospheric.

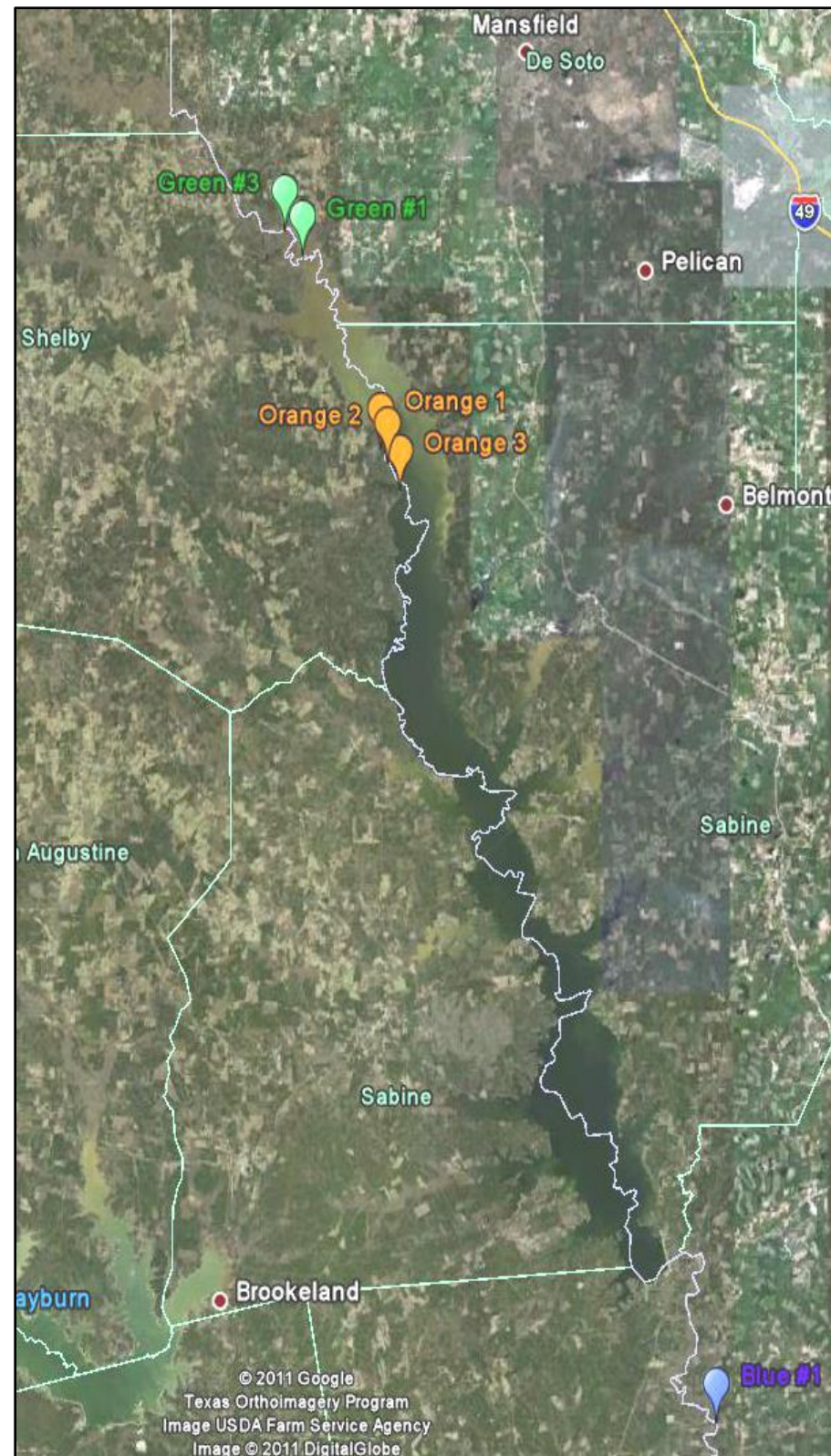
## METHODS

Cores were sliced into 1" cylindrical segments for depth profiling. From each 1" depth, 1 gram samples were digested in 20 mL aqua regia; the solids were filtered off; the filtrate was diluted to 50 mL and analyzed by atomic absorption using the standard addition method.



## ACKNOWLEDGEMENTS

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	Green 1	Green 3
Top 1" segment	tbd	62
6" segment	219	408

mg Cr / kg sediment

	Green 1	Green 3
Top 1" segment	143	1163
6" segment	594	11045

mg Pb / kg sediment

## CONCLUSIONS

Preliminary results indicate that a substantial amount of chromium and lead are present in the bed sediments just north of the reservoir and at least as deep as six inches. Further studies are warranted to determine the extent of metal contamination.

## CURRENT STATUS AND FUTURE WORK

To date, six core samples have been collected. Each of the cores will be analyzed at every 1" depth for chromium, lead, mercury, and arsenic. The digestion method is tedious and has yet to be optimized; the sample matrix is diverse which gives rise to a large amount of interferences and background noise during data collection and sample analysis. Salt deposition onto the burner head and inside the nebulizer has been an issue as well.