BP Oil Spill Effects on the Abundance and Composition of Louisiana Marsh Fishes
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Abstract
In 2010, the BP Oil Spill reached coastal areas of the Gulf states, including Louisiana. The distribution of oil in salt marshes was significant, but patchy. The purpose of this project is to assess the long-term effects of the Oil Spill on the marsh fish communities. In the summers of 2012 and 2013, we sampled oiled and unooled sites in Terrebonne and Barataria Bays. Most of our catch was dominated by four fish species: Fundulus grandis, A. xenica, Poecilia latipinna, and Cyprinodon variegatus. We recorded differences in fish abundances between oiled and unooled sites and across subhabitats (marsh edge, creek, pond, and depression). Our results suggest that fish responses to oil pollution could be linked to habitat use patterns.

Objective
To assess the effects of the BP Oil Spill on marsh fish communities by evaluating fish species composition and abundance and habitat use patterns in oiled and unooled marshes.

Background

Sampling Methods
In June 2012 and May 2013 we surveyed 6 oiled and oooled paired sites in Terrebonne Bay, Cana Island, and Port Sulphur. Four subhabitats (edge, creek, pond, and depression) were sampled at each site with (0.3m mesh) minnow traps.

Results

I. Species Composition and Abundance
Over 2,000 fish and 13 different species were captured during this study. Most (90%) are represented by the four species depicted below (Figure 1). Half of the fish were collected in oiled sites.

II. Habitat Use Patterns
Fish captures in the marsh edge were minimal in oiled and unooled sites (<1%). Most fish (80%) were collected in ponds and depressions.

Conclusions
• Effects attributed to oil pollution were not seen in all four species examined.
• Different responses could be related to:
  - Tolerance levels to stressors
  - Reproductive strategies
  - Habitat use by different size classes
• Habitat use patterns appear to be affected by the presence of weathered oil.
• Analysis is underway to examine the use of subhabitats by different size classes and the reproductive strategies utilized by these fishes.

References

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