



Brown Marsh Q & A

Questions and answers from the Brown Marsh scientific panel and other meetings

1. Q. What is the Brown Marsh phenomenon?

A. Brown Marsh is a term that Louisiana scientists have given to the rapid and unusual browning of Louisiana's intertidal smooth cordgrass (*Spartina alterniflora*) marshes. This browning began during the spring of 2000, long before it would normally occur in the fall.

2. Q. Is Brown Marsh dead marsh?

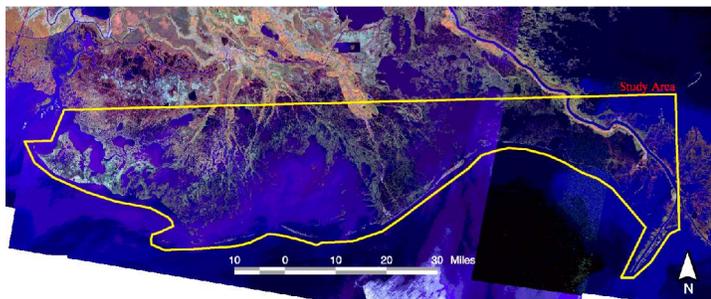
A. Some areas of marsh having roots, with little or no aboveground vegetation remaining, have been tested and are completely dead. Other affected areas still have the marsh grass standing but are entirely or mostly brown. Experts cannot be sure if the root structures in these areas are dead. Still other affected areas show the browning effects but have some patches or individual plants that are green and still living.

3. Q. Are other marsh types and plants affected?

A. Yes, effects have been observed in saltmeadow cordgrass (*Spartina patens*). However, black mangroves (*Avicennia germinans*), saltgrass (*Distichlis spicata*), and other salt tolerant species do not appear affected.

4. Q. Where along Louisiana's coast are marshes affected?

A. The phenomenon of brown marsh has been observed along Louisiana's coastline. Hardest hit is the Barataria-Terrebonne estuary extending from the west side of the Mississippi River to the Atchafalaya River. Least affected marshes appear to be those lying east of the Mississippi River.



5. Q. How severe is the Brown Marsh phenomenon?

A. The Barataria-Terrebonne intertidal salt marshes, which are mostly composed of smooth cordgrass, cover approximately 390,000 acres. About 110,000 acres have been severely impacted; of those acres, at least 17,000, or about 4%, have converted from dense vegetation to open mud flats with little or no vegetation.

About 150,000 acres are considered moderately impacted. In the moderately impacted areas, green marsh can still be seen, but the marsh has a significant degree of browning. About 137,000 acres of the entire 390,000 acres of intertidal *Spartina alterniflora* in the Barataria-Terrebonne estuary are considered normal.

6. Q. What is the cause of the marsh dieback and browning?

While scientists have not completed their investigations, they believe that extreme drought, high salinities, heat, evaporation, combined with extremely low Mississippi and Atchafalaya River discharges have stressed the shallow rooted *Spartina alterniflora*.

Water management in the Mississippi River delta has focused on preventing flood conditions during the last 100 years. The engineered flood plain of the Mississippi River in Louisiana limits the release of fresh water to wetland areas. The lack of freshwater flow may lead to a more severe response of coastal wetlands under drought conditions.

7. Q. Has any regeneration or regrowth of "dead marshes" been observed?

A. Yes, some regeneration of "moderately impacted" marsh has been observed.

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8. Q. Has marsh dieback been observed before in Louisiana or elsewhere?

A. Yes, it is not unusual for salt marshes to experience dieback in small patches in some years. However, these areas are usually less than an acre or so in size and generally regenerate the next year or over the next several years. In recent years, smooth cordgrass marshes on the coast of Texas have died in small patches ranging from 2-5 acres. But no dieback as extensive as the current Louisiana condition has been observed in recent history.

9. Q. What can be done to stop the marsh dieback?

A. The problem requires short- and long-term solutions. Scientists are hopeful that recent rainfall may help to reduce further losses this year. However, rebuilding marshes and ensuring against future die-off can best be accomplished by getting more freshwater flow into the marshes.

10. Q. How can more fresh water be put into the marshes?

A. Many strategies to introduce more freshwater into Louisiana's marshes have been studied. Diversions from the Mississippi River and increased flow from the Atchafalaya River appear most promising. Scientists observed that salt marsh to the east in the vicinity of the Mississippi River diversion at Caernarvon have appeared healthy throughout this drought period.

11. Q. How will the brown marshes affect fisheries and waterfowl?

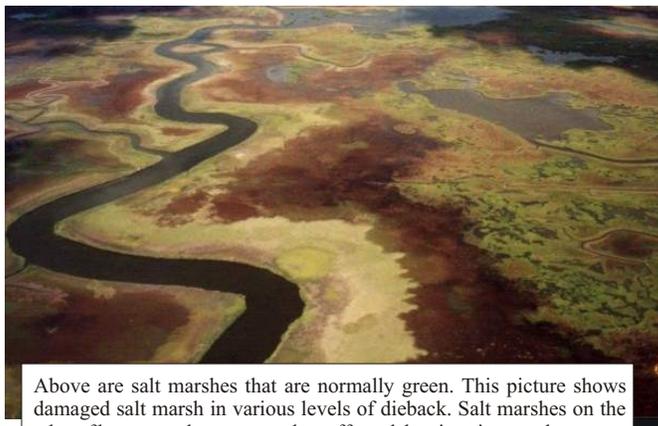
A. Coastal marshes provide essential habitat and nurseries for fish and habitat for migratory and non-migratory birds, mammals, reptiles, and amphibians. Scientists cannot at this time predict the effects on specific populations, although any loss of these important intertidal marshes is sure to lead to a long-term decline in habitat.

12. Q. What are the likely effects of the dead and dying marshes if one or more hurricanes make landfall on the Louisiana coast or during normal winter storm fronts in the coming year?

A. There is great concern that the dead marsh areas could be seriously affected by major storm events. Local, state, and federal agencies are working together to determine what, if any, short-term measures can be implemented, and to put in place long-term remediation strategies. The Governor's Office has requested consideration of an emergency funding allocation through federal sources to provide for immediate assistance.

13. Q. What are the social and economic effects of the marsh dieback?

A. Effects to industries such as oil and gas cannot be predicted, but healthy marshes and barrier islands are known to be important storm buffers to Louisiana's mainland. Concerns exist for Louisiana's coastal industries, as well as for Louisiana's coastal residents. As marshes and barrier islands deteriorate, people and their communities are placed at increased risk from major storms, as well as from minor storm events. Further, the continued loss of coastal landmasses could increase the intrusion of salt water into water bodies used as freshwater drinking sources.



Above are salt marshes that are normally green. This picture shows damaged salt marsh in various levels of dieback. Salt marshes on the edge of bayous and streams are less affected than interior marshes.