APPENDIX H:

USEPA's National Aquatic Resource Surveys (NARS)

Beginning in the early 2000s, USEPA began development of what came to be known as the National Aquatic Resource Surveys (NARS). NARS was designed to answer national-scale questions regarding water quality; questions which could not be easily answered by aggregating the individual state's water quality reports required under CWA sections 305(b) and 303(d). Each year one of four primary water body types is evaluated under the NARS program. Water body types include rivers and streams, lakes and reservoirs, wetlands, and coastal waters. Reports for each water body type are broken down into large regions in order to standardize water quality benchmarks and reporting as much as possible within the regions. This allows NARS to provide a statistically-valid snapshot or "report card" of water quality across large regions and water body types within the United States.

The NARS program differs from most state water quality sampling in that NARS sites are randomly selected each year based on a statistically designed randomization process. Random selection is a key component of the statistically-valid sampling required by the NARS program. By contrast, LDEQ's water quality monitoring program is designed to target nearly all of the water body subsegments identified in Louisiana's water quality regulations (LAC 33:IX.1123.Table 3). In addition, LDEQ's monitoring sites are frequently located at bridge crossings or piers to facilitate the quick and efficient sample runs required to meet certain parameter holding times for laboratory analysis. This targeted approach, with occasional modifications to site locations over the years, has been in place in Louisiana since 1958. It allows LDEQ to assess all of the major water bodies in the state and many of the smaller, more remote ones as well. The approach also allows LDEQ to develop long-term trends analysis on many of the state's water bodies due to consistent sampling over many years. The difference in sampling methods should be taken into account when evaluating the results from NARS. More information on NARS, including sampling methods and statistical data analysis, can be found on the USEPA website at, https://www.epa.gov/national-aquatic-resource-surveys.

In April 2023, USEPA published the final report for the 2016 National Wetland Condition Assessment (NWCA). Sites were tested for impacts to vegetation, soils, hydrology, algae, water chemistry, and potential wetland stressors. To characterize wetland conditions, EPA interpreted the data using applicable and available benchmarks for each ecological indicator to calculate an index score to rate a site good, fair or poor. Louisiana specific site data (Figure H.1) was aggragated for LDEQ by personnel with USEPA, Region 6 using the NARS Population Estimate Calculation Tool (v. 2.0). Due to the randomized and single sampling event nature, it is important to note that while site-specific data is available it should only be considered as an aggregated snapshot of wetland conditions. The state-specific snapshots (Figures H.2-H.14) provided by the NCCA data should not be considered as definitive or indicative of water quality assessments for Integrated Report purposes. The full report can be found at https://wetlandassessment.epa.gov/webreport/.

Figure H.1

National Wetland Condition Assessment 2016 survey sites within Louisiana.
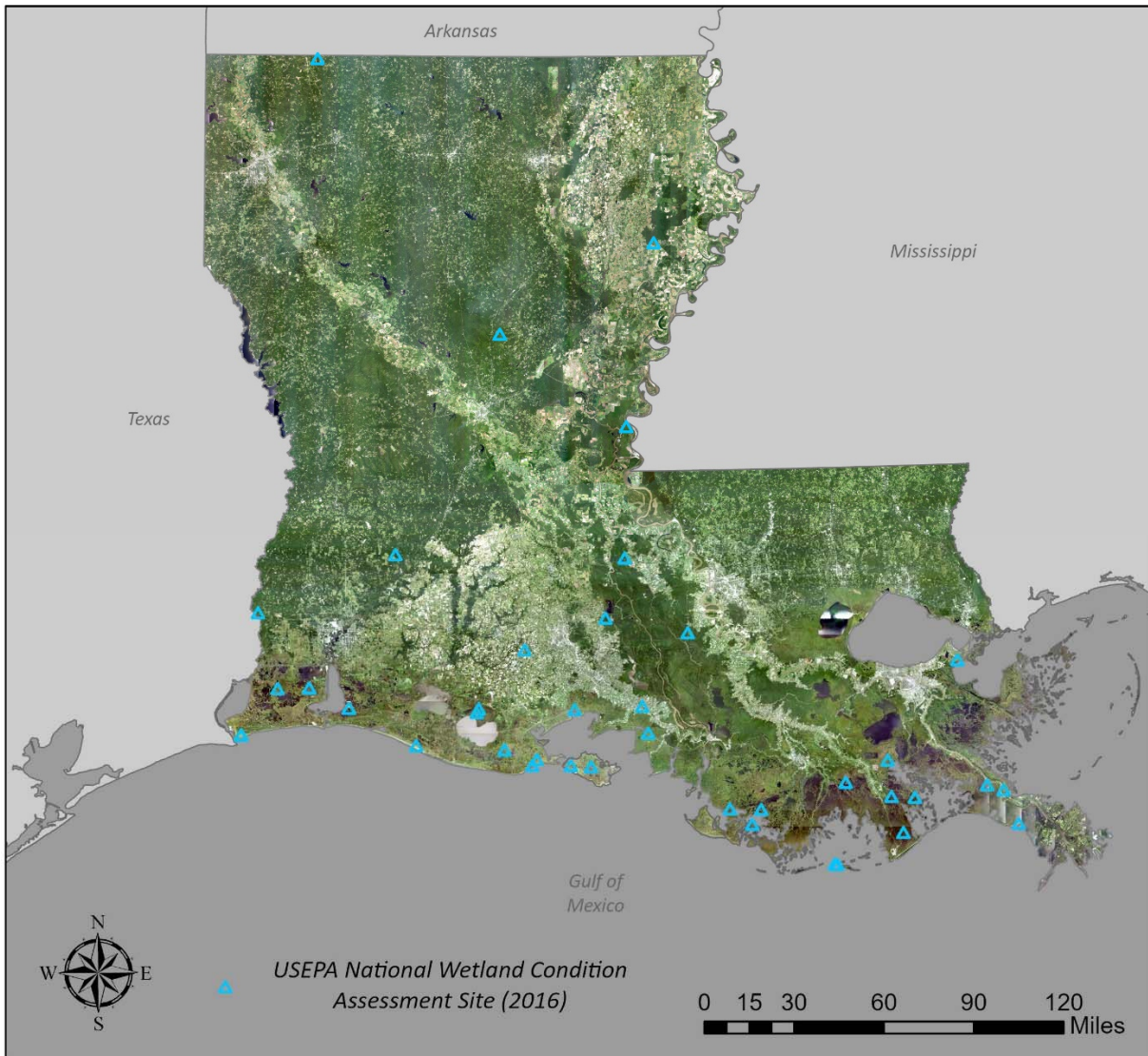
Figure H.2

National Wetland Condition Assessment 2016 survey results for Louisiana: vegetation multi-metric index condition. Error bars represent upper and lower 90%confidence limits.
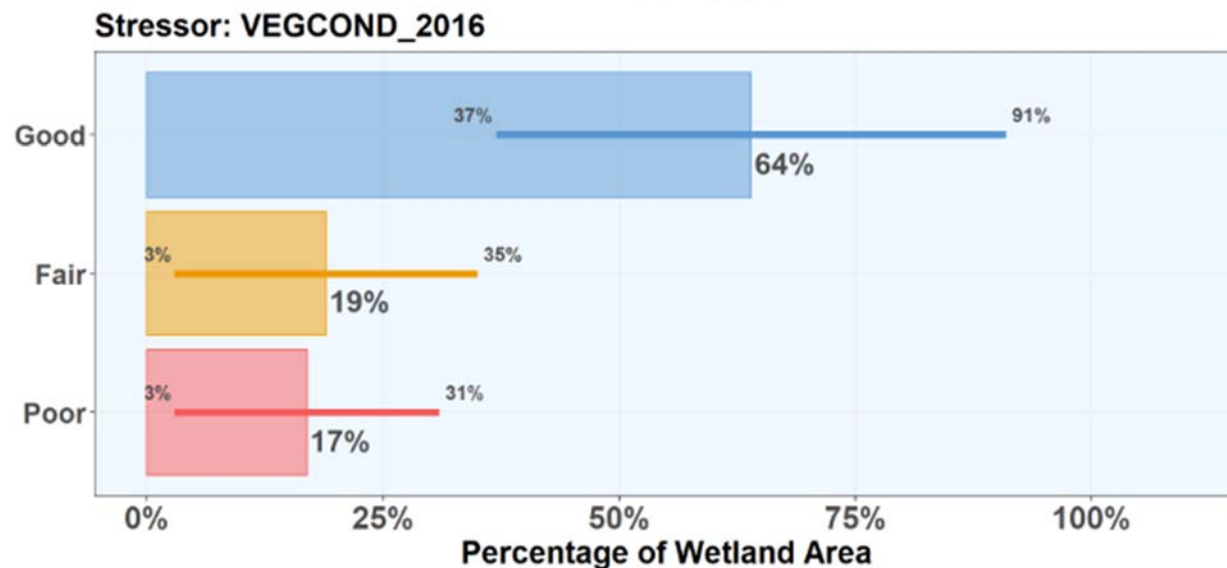

Figure H.3

National Wetland Condition Assessment 2016 survey results for Louisiana: non-native vegetation condition. Error bars represent upper and lower 90%confidence limits.
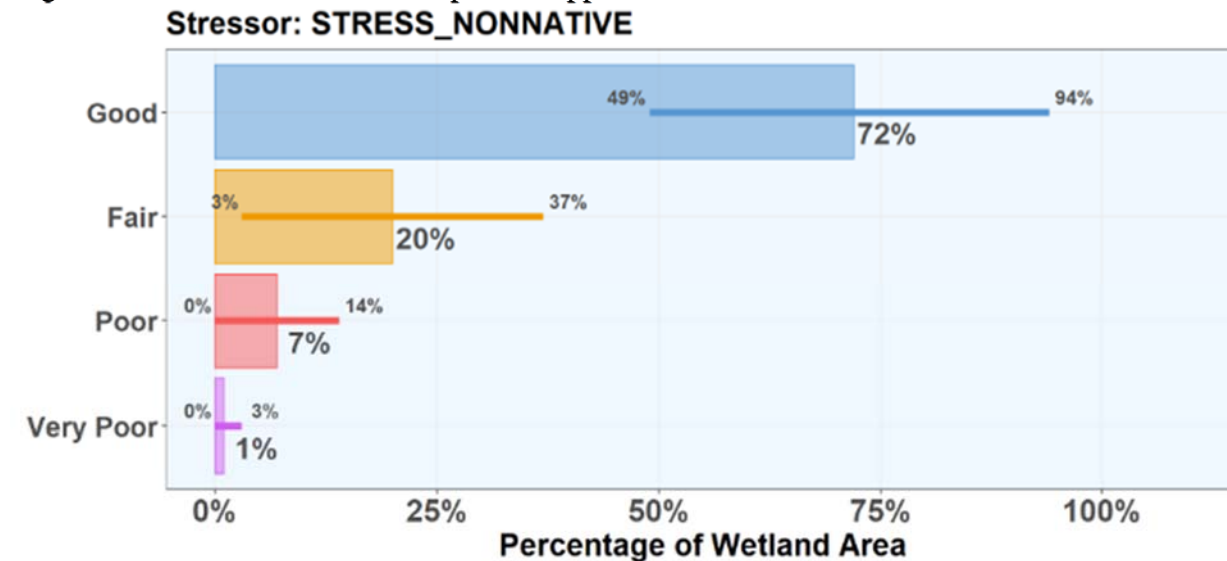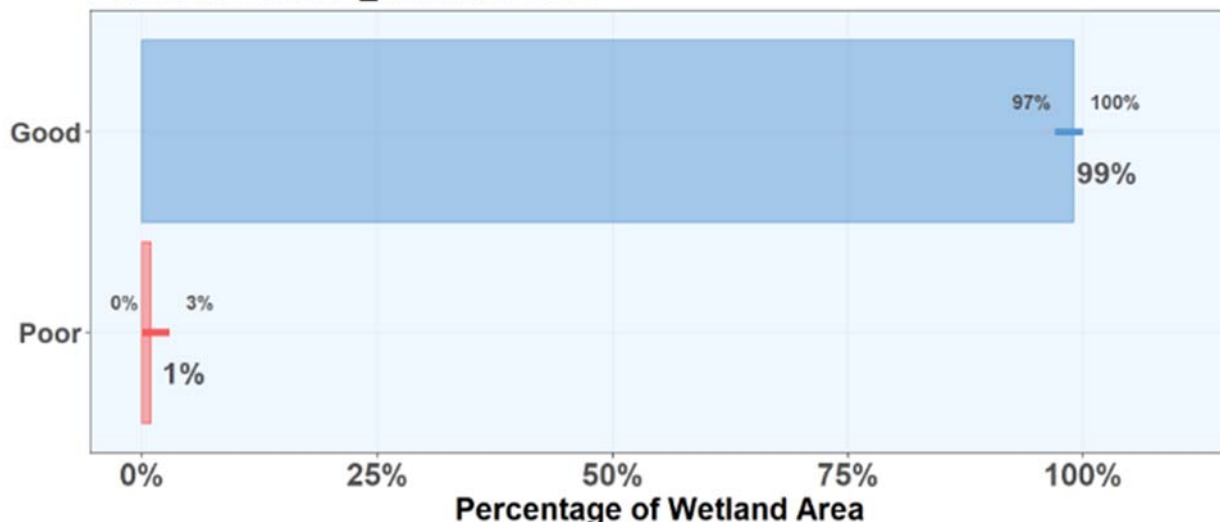
Figure H.4

National Wetland Condition Assessment 2016 survey results for Louisiana: heavy metal condition. Error bars represent upper and lower 90% confidence limits.

Figure H.5

National Wetland Condition Assessment 2016 survey results for Louisiana: total nitrogen condition. Error bars represent upper and lower 90% confidence limits.

Figure H.6

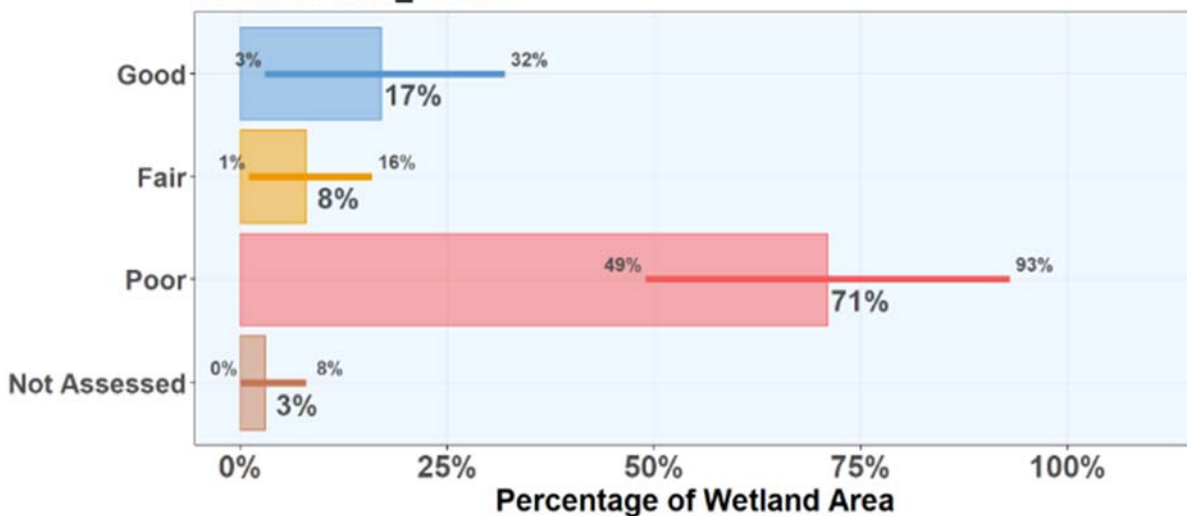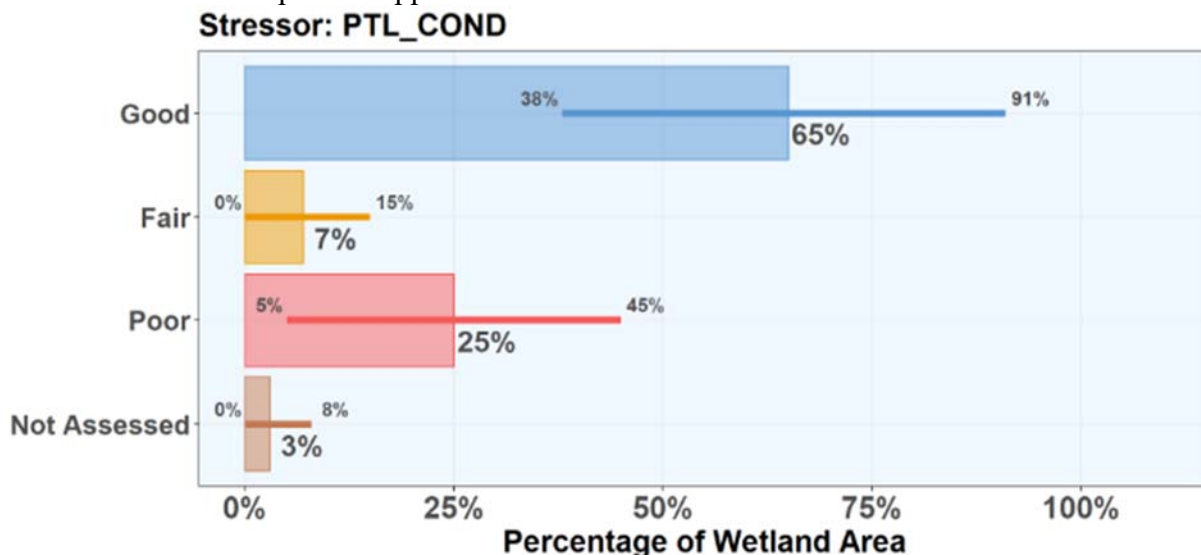National Wetland Condition Assessment 2016 survey results for Louisiana: total phosphorous condition. Error bars represent upper and lower 90$^{\%}$confidence limits.

Figure H.7

National Wetland Condition Assessment 2016 survey results for Louisiana: microcycstin condition at 8 ppb benchmark. Error bars represent upper and lower 90$^{\%}$confidence limits.
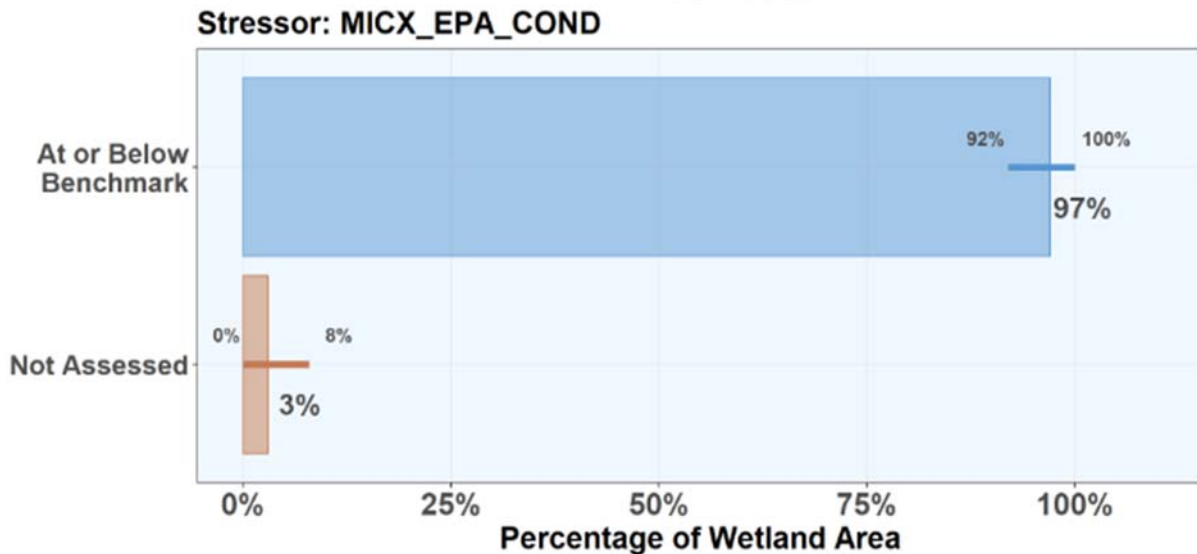
Figure H.8

National Wetland Condition Assessment 2016 survey results for Louisiana: physical alteration condition. Error bars represent upper and lower 90%confidence limits.
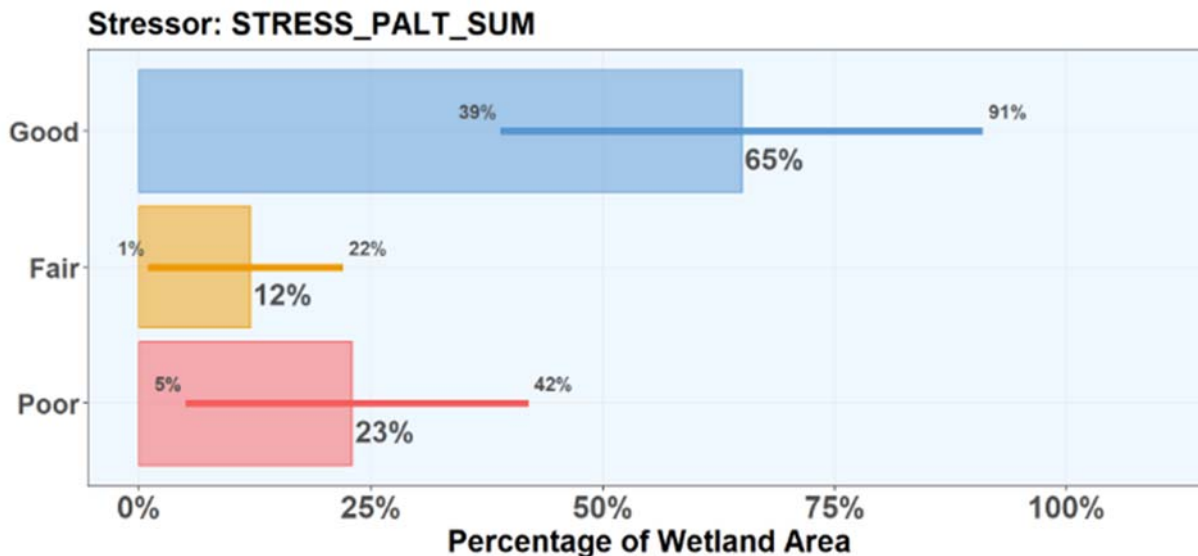

Figure H.9

National Wetland Condition Assessment 2016 survey results for Louisiana: vegetation removal condition. Error bars represent upper and lower 90%confidence limits.
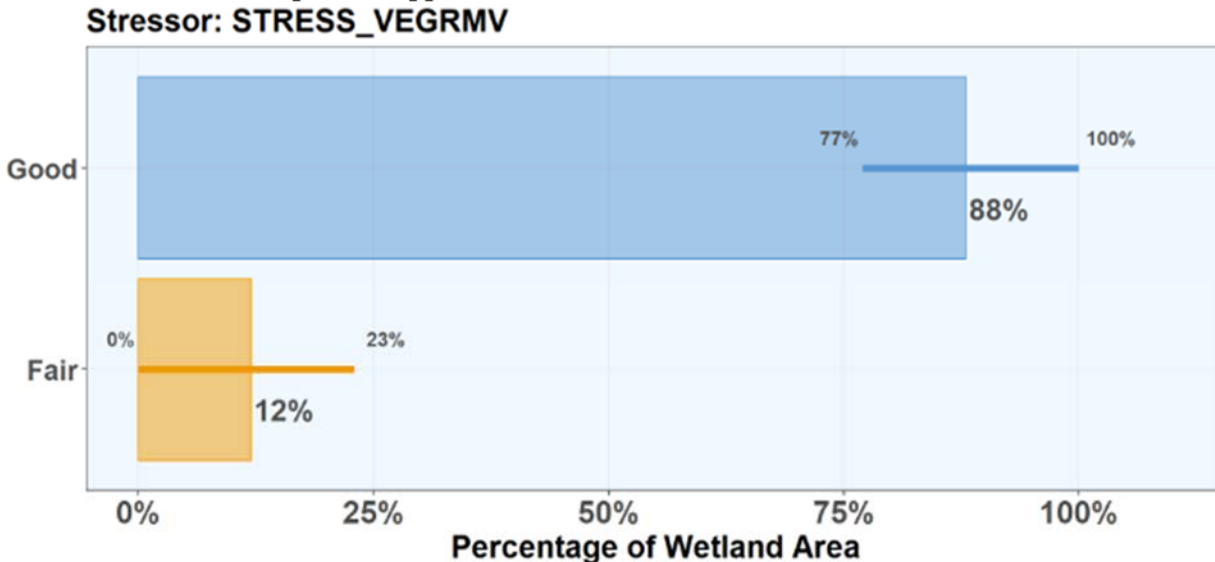
Figure H.10

National Wetland Condition Assessment 2016 survey results for Louisiana: vegetation replacement condition. Error bars represent upper and lower 90$^{\%}$confidence limits.
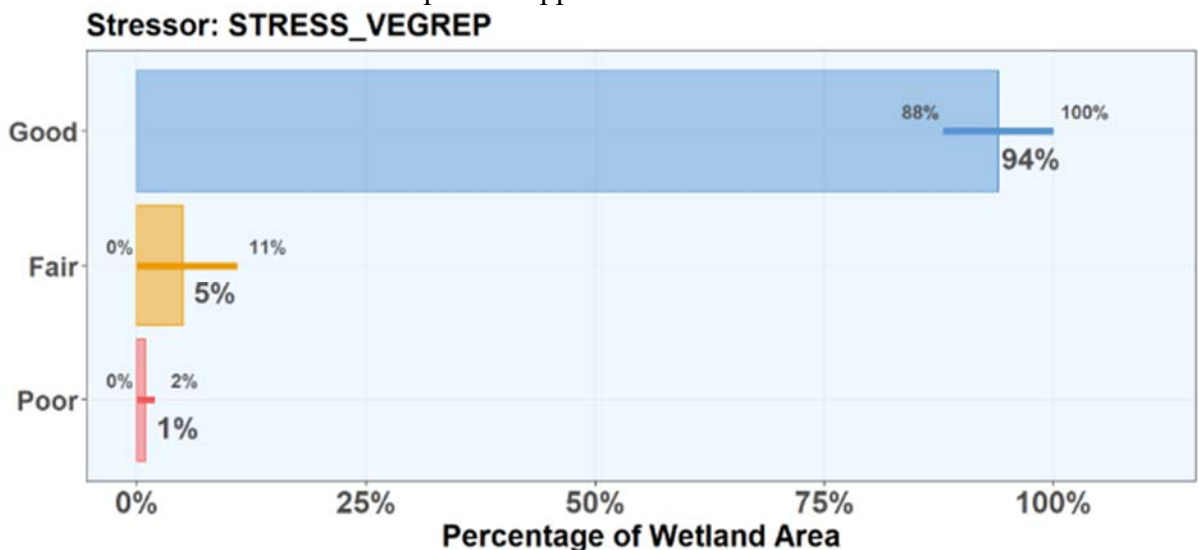

Figure H.11

National Wetland Condition Assessment 2016 survey results for Louisiana: flow obstruction condition. Error bars represent upper and lower 90$^{\%}$confidence limits.
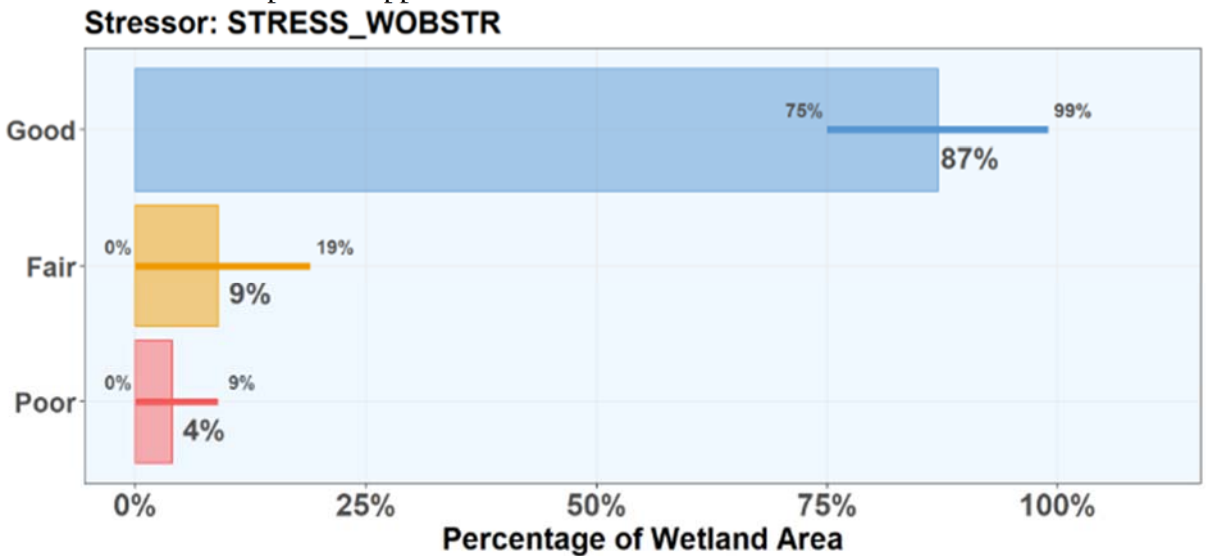
Figure H.12

National Wetland Condition Assessment 2016 survey results for Louisiana: water addition or subtraction condition. Error bars represent upper and lower 90$^{\%}$ confidence limits.
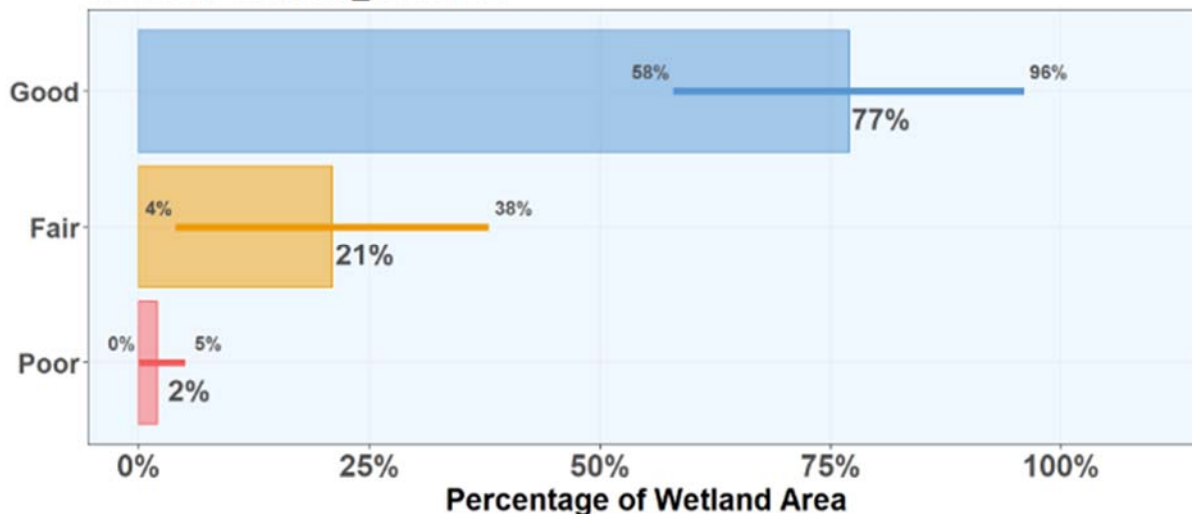

Figure H.13

National Wetland Condition Assessment 2016 survey results for Louisiana: soil hardening condition. Error bars represent upper and lower 90$^{\%}$ confidence limits.
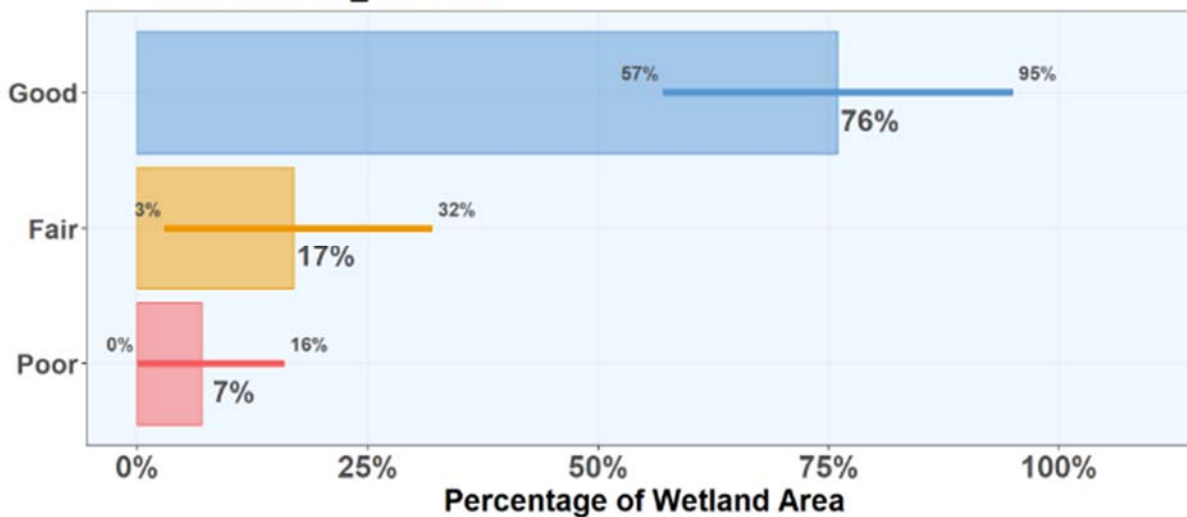
Figure H.14

National Wetland Condition Assessment 2016 survey results for Louisiana: soil modification condition. Error bars represent upper and lower 90%confidence limits.