

## 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.

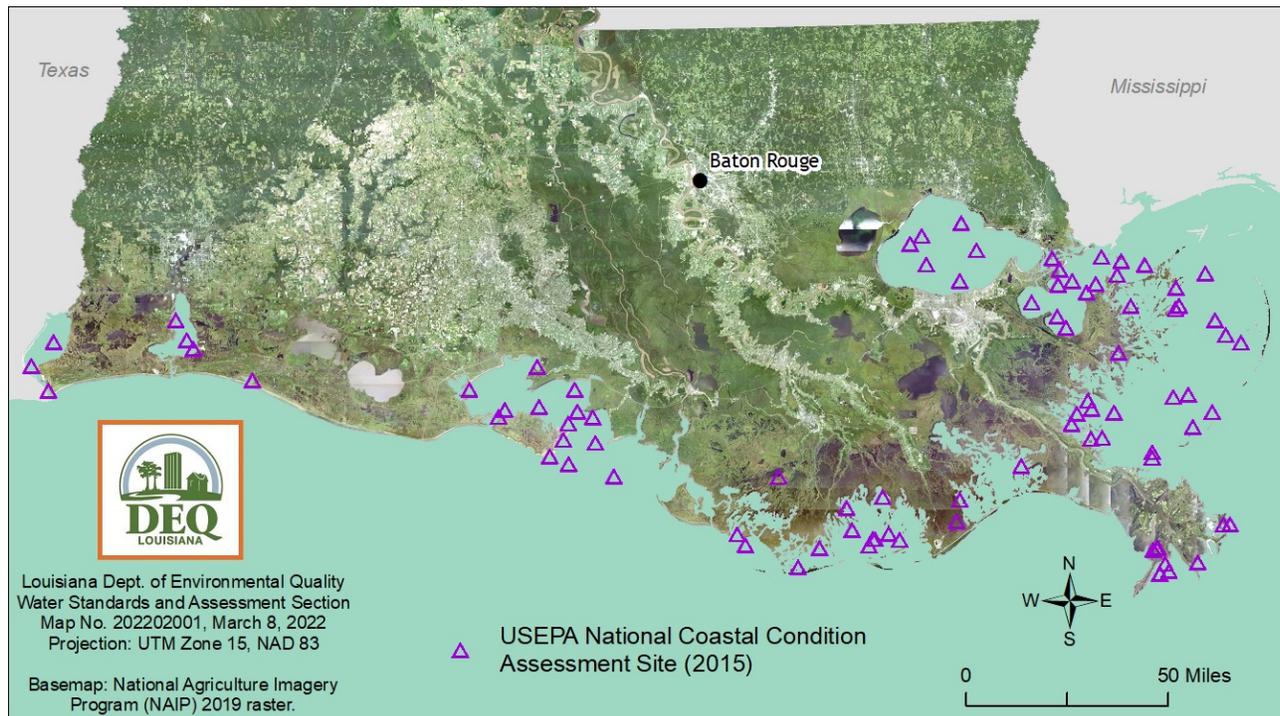
The NARS program differs from most state water quality sampling in that NARS sites are randomly selected each year based on a statistically designed randomization process. Random selection is a key component of the statistically-valid sampling required by the NARS program. By contrast, LDEQ's water quality 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 2021, USEPA published sampling data for the 2016 National Wetland Conditions Assessment (NWCA), the 2017 National Lakes Assessment (NLA), and the 2018 National Rivers and Streams Assessment (NRSA). Sites were tested for impacts to vegetation, soils, hydrology, algae, water chemistry, and potential wetland stressors. The final reports for these assessments have not been published to date.

In August 2021, USEPA published the final report for the 2015 National Coastal Condition Assessment (NCCA). To characterize coastal 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 aggregated 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 coastal conditions. The state-specific snapshot 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://www.epa.gov/system/files/documents/2021-09/nccareport\\_final\\_2021-09-01.pdf](https://www.epa.gov/system/files/documents/2021-09/nccareport_final_2021-09-01.pdf).

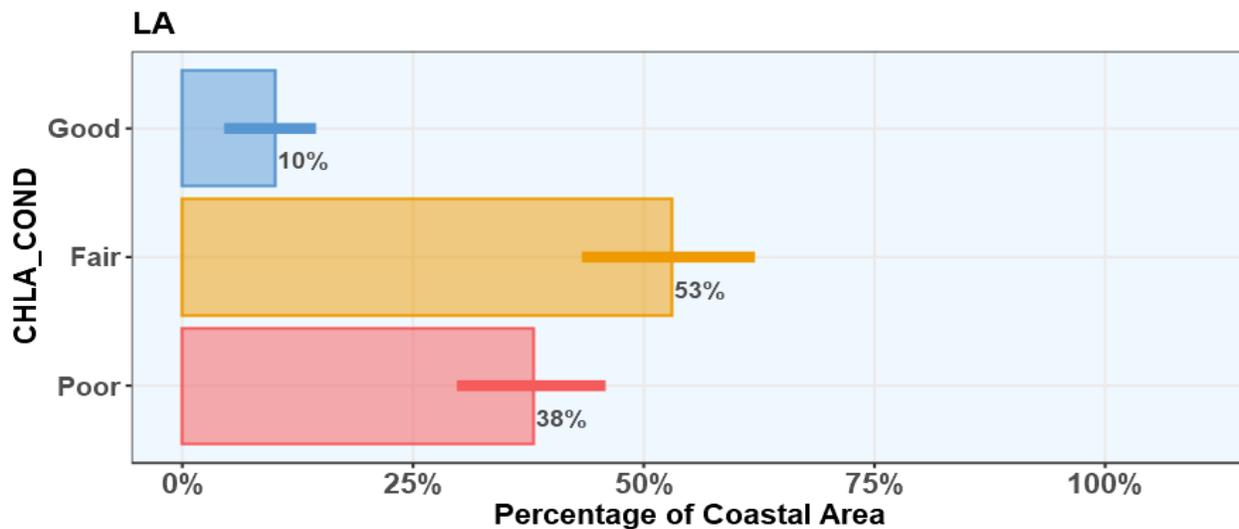
**Figure H.1**

**National Coastal Condition Assessment 2015 survey sites within Louisiana.**



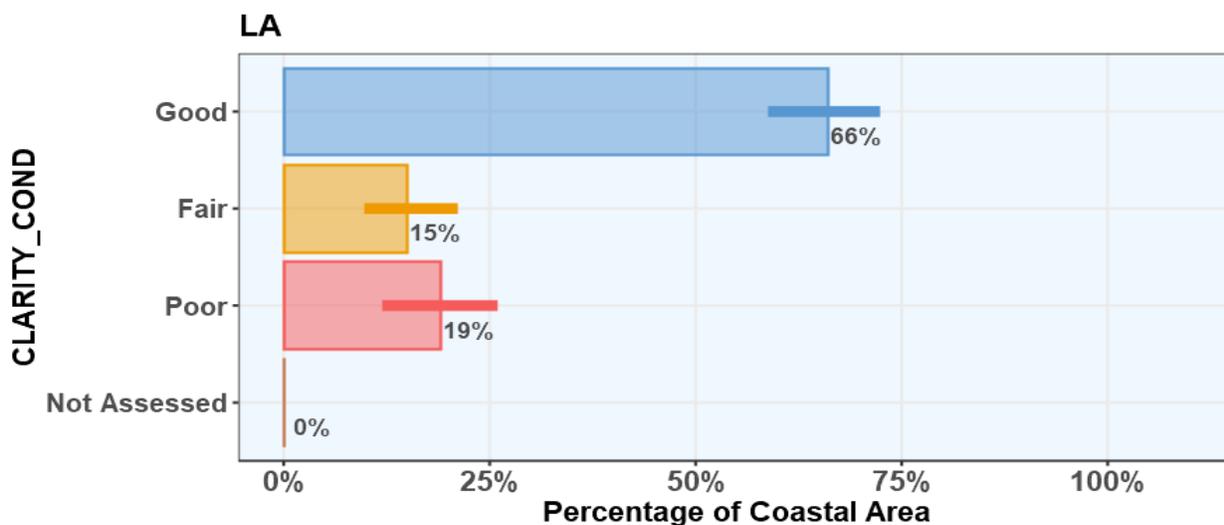
**Figure H.2**

National Coastal Condition Assessment 2015 survey results for Louisiana. Dissolved chlorophyll-a condition index. Error bars represent upper and lower 95<sup>th</sup> percentile confidence limits. (All graphics provided by USEPA, Region 6 staff.)



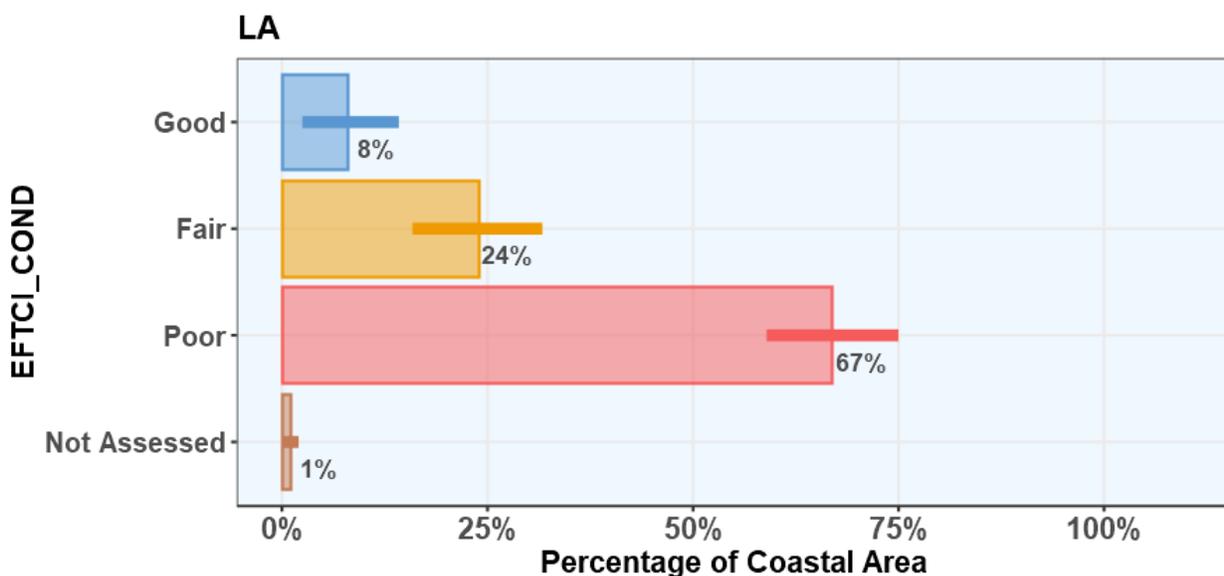
**Figure H.3**

National Coastal Condition Assessment 2015 survey results for Louisiana. Water clarity condition index. Error bars represent upper and lower 95<sup>th</sup> percentile confidence limits. (All graphics provided by USEPA, Region 6 staff.)



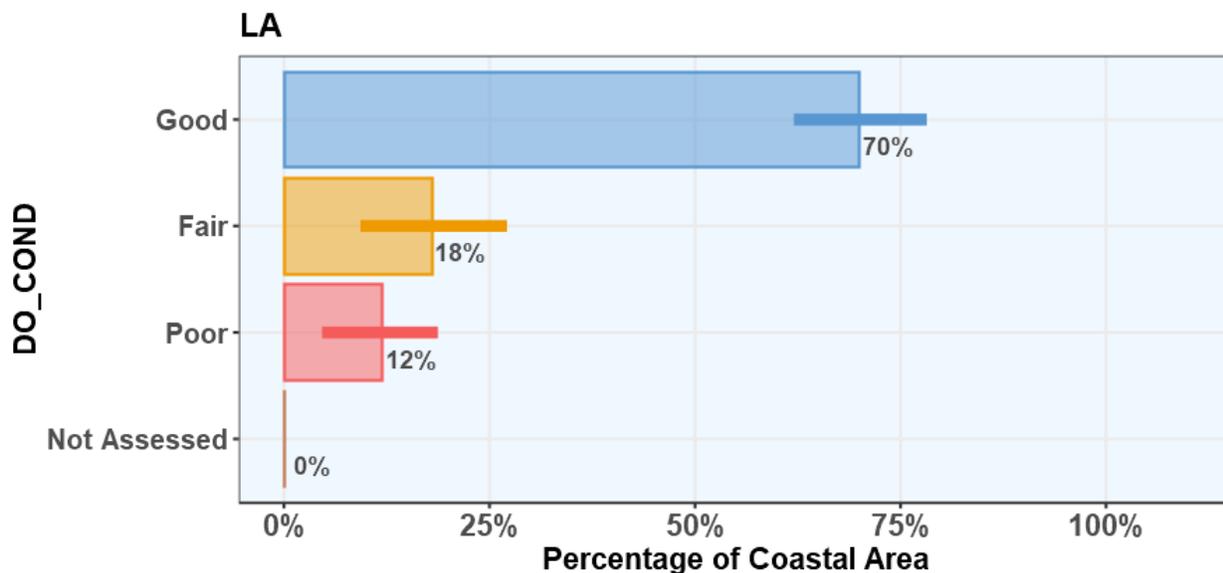
**Figure H.4**

National Coastal Condition Assessment 2015 survey results for Louisiana. Ecological fish tissue condition index. Error bars represent upper and lower 95<sup>th</sup> percentile confidence limits. (All graphics provided by USEPA, Region 6 staff.)



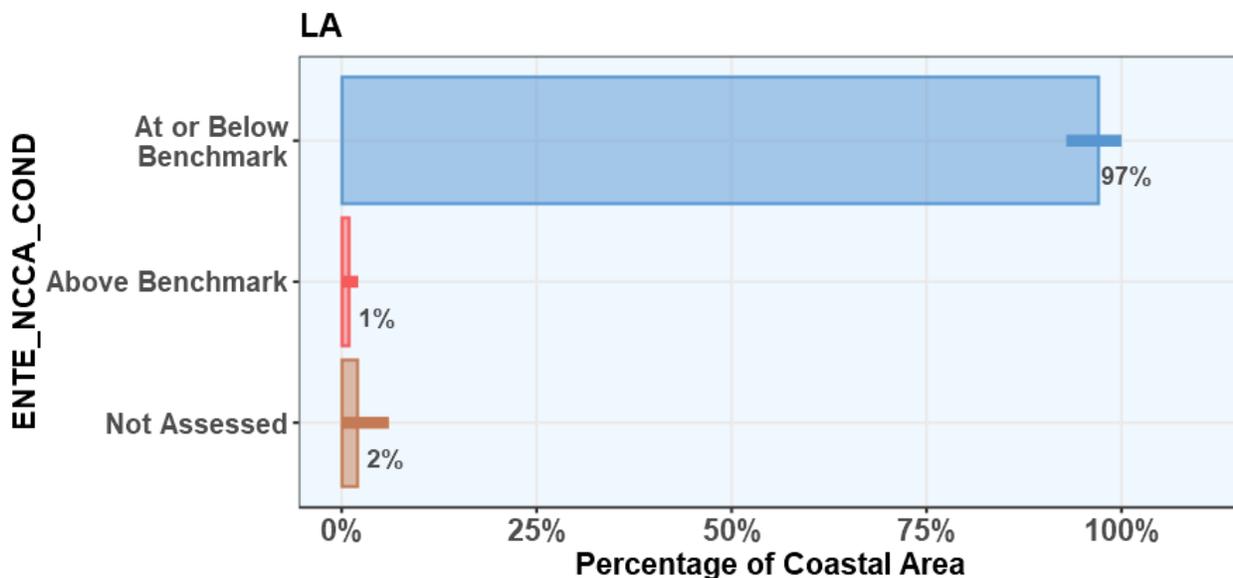
**Figure H.5**

National Coastal Condition Assessment 2015 survey results for Louisiana. Dissolved oxygen condition index. Error bars represent upper and lower 95<sup>th</sup> percentile confidence limits. (All graphics provided by USEPA, Region 6 staff.)



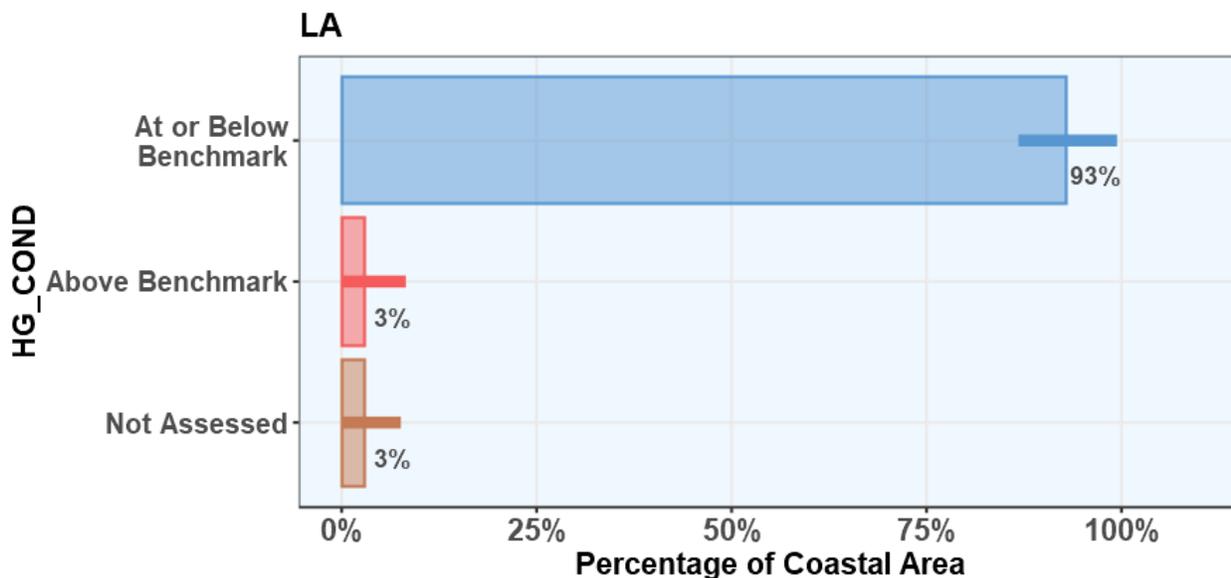
**Figure H.6**

National Coastal Condition Assessment 2015 survey results for Louisiana. Enterococci condition index. Error bars represent upper and lower 95<sup>th</sup> percentile confidence limits. (All graphics provided by USEPA, Region 6 staff.)



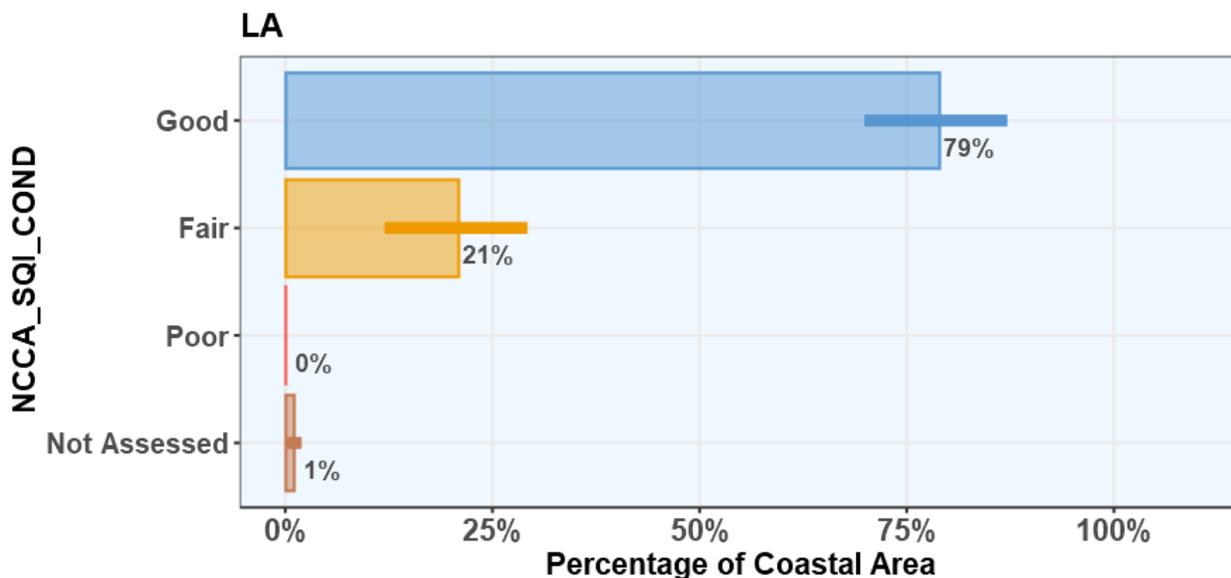
**Figure H.7**

National Coastal Condition Assessment 2015 survey results for Louisiana. Mercury condition index. Error bars represent upper and lower 95<sup>th</sup> percentile confidence limits. (All graphics provided by USEPA, Region 6 staff.)



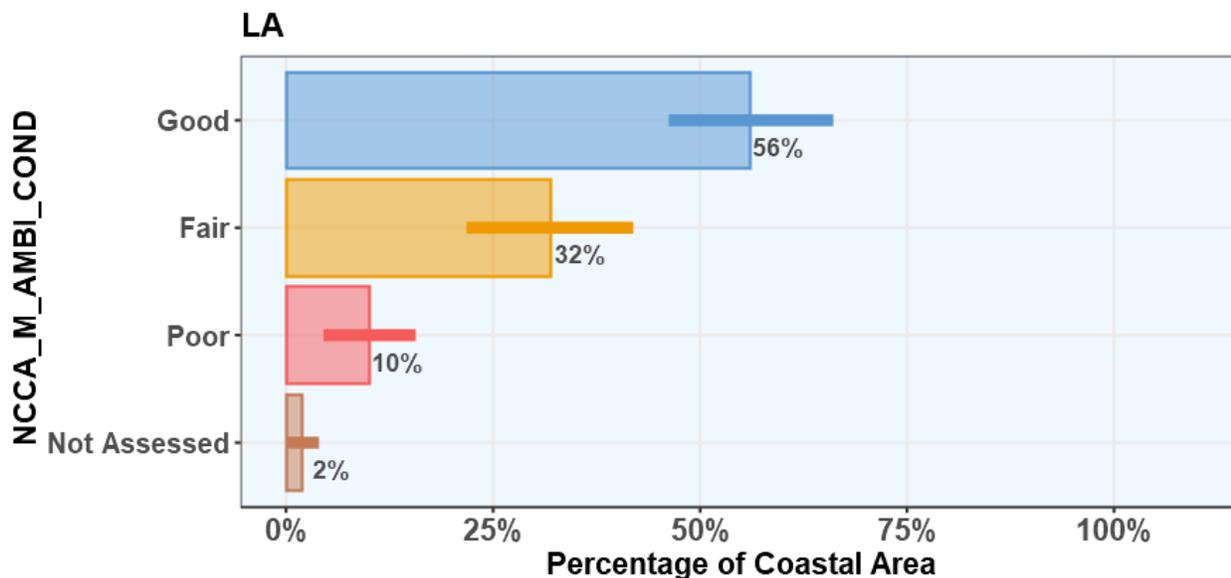
**Figure H.8**

National Coastal Condition Assessment 2015 survey results for Louisiana. Sediment quality condition index. Error bars represent upper and lower 95<sup>th</sup> percentile confidence limits. (All graphics provided by USEPA, Region 6 staff.)



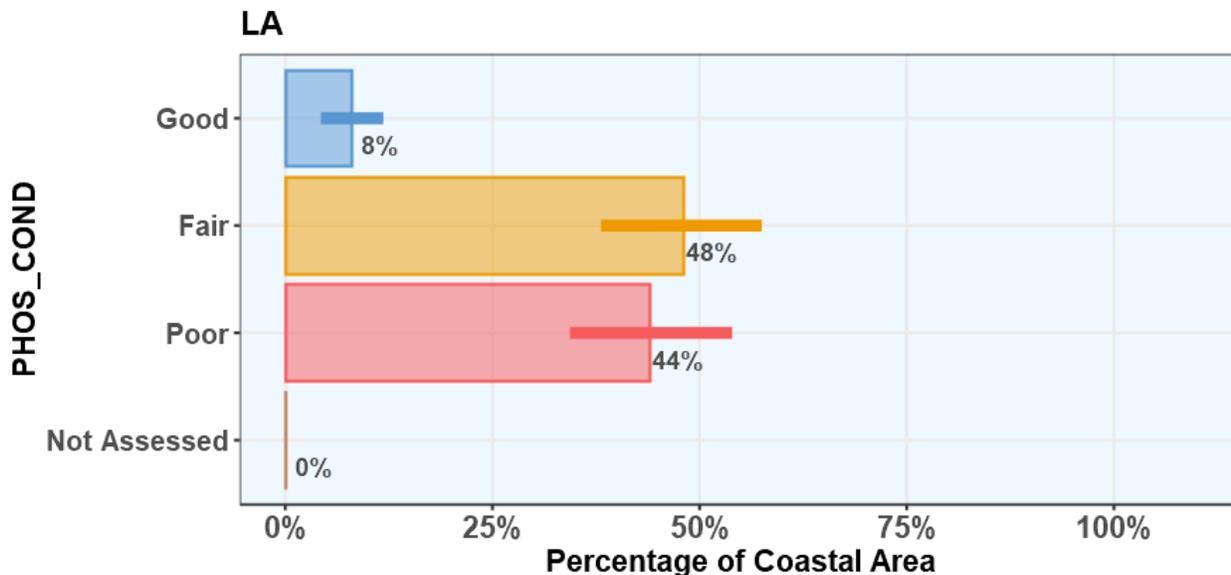
**Figure H.9**

National Coastal Condition Assessment 2015 survey results for Louisiana. Macroinvertebrate ambient condition index. Error bars represent upper and lower 95<sup>th</sup> percentile confidence limits. (All graphics provided by USEPA, Region 6 staff.)



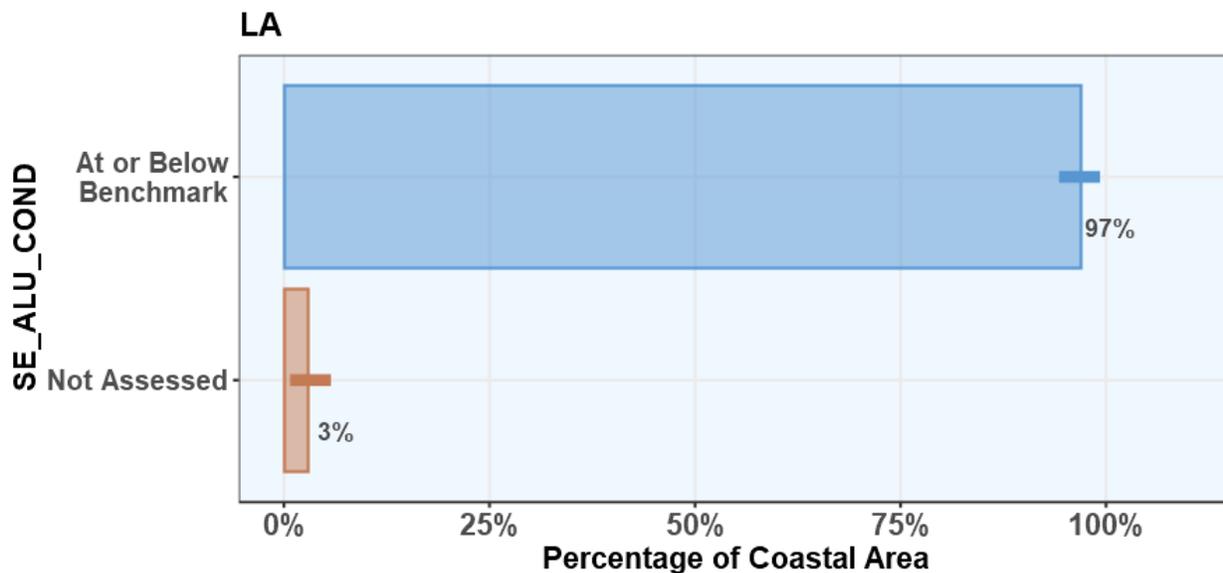
**Figure H.10**

National Coastal Condition Assessment 2015 survey results for Louisiana. Dissolved inorganic phosphorus condition index. Error bars represent upper and lower 95<sup>th</sup> percentile confidence limits. (All graphics provided by USEPA, Region 6 staff.)



**Figure H.11**

National Coastal Condition Assessment 2015 survey results for Louisiana. Selenium aquatic life use condition index. Error bars represent upper and lower 95<sup>th</sup> percentile confidence limits. (All graphics provided by USEPA, Region 6 staff.)



**Figure H.12**

National Coastal Condition Assessment 2015 survey results for Louisiana. Eutrophication condition index. Error bars represent upper and lower 95<sup>th</sup> percentile confidence limits. (All graphics provided by USEPA, Region 6 staff.)

