**Products available for this survey area**

* Sidescan sonar imagery (GeoTIFF)
* Bathymetric point data from Singlebeam Echosounder (ArcGIS Shapefile and CSV)
* SV data from Singlebeam Echosounder (ArcGIS Shapefile and CSV)
* Classified thematic habitat map of submerged habitats (ArcGIS shapefile)
* Interpolated DEM from bathymetric point data (Raster)
  + Data has some noise/streaking, so use in automated analyses is not suggested
* Peer reviewed journal publication
  + Legare, B. and C. Mace. 2016. Mapping and classifying eastern oyster habitat in Copano Bay, Texas, by coupling acoustic technologies. Journal of Coastal Research.

**Field Data Collection**

* Data were collected from 4 September 2013 to 25 February 2014
* Sidescan = Teledyne Benthos C3D
  + Bow-mounted
  + 200 kHz frequency
  + Range of 100 meters
  + 12% Overlap between transect
  + Transect spacing of 185 meters
  + Data collected in WGS 84
  + Projected to UTM 14N
  + Location Data: Ashtec dGPS receiver with Communication System International MBX-3 Differential
* Singlebeam = Biosonics DTX
  + 120 kHz frequency
  + Collected in Visual Acquisition
  + Beam width = 8.1o
  + Pulse rate = 5
  + Pulse duration = 0.1
  + Power Reduction = -9.2
  + Transducer depth = 0.61 m
  + Location Data = Garmin GA 29 GPS
* Survey planning in Hypack

**Data Post Processing**

* Sidescan
  + Chesapeake SonarWiz V6
  + Bottom track
  + Empirical Gain Normalization
  + Mosaic and output as 8-bit GeoTiff with 0.5 m-resolution
  + WGS84 UTM 14N
* Singlebeam
  + Processed in EchoView
  + Bottom Line Selection
    - Min SV for pick = -30
    - Backstep @ 0
    - Peak threshold = -40
  + Bottom Classification (to pull features)
    - Distance between intervals = 3 m
    - Background noise = -70
  + Bathy file metadata:
    - “Depth\_TrnCor” = raw range data converted to depth by adding the transducer offset of 0.61 m
    - “Dep\_TidCor” = “Depth\_TrnCor” corrected for tide
      * Corrected to MLLW using 1-hour intervals from nearest tide station = Rockport, 8774770
    - All depths reported in meters

DEM Creation (can be re-created from point data using different interpolation techniques)

* Empirical Bayesian kriging
  + Output cell size 50
  + Logempirical transformation
  + Exponential semivariogram
  + 500 points in each local model
  + Local model overlap 3
  + 50 simulated semivariograms
  + Standard circular search pattern
    - Radius of 100 m
    - Maximum neighbors = 500
    - Minimum neighbors = 100
    - Angle 45
    - Sector Type - 4

**Habitat Classification**

* Manual interpretation based on sidescan imagery and singlebeam SV values
* Accuracy assessment using poling
* 150 ground-truthing samples
  + User’s accuracy
    - Mud = 100%
    - Oyster = 90%
    - Sand = 63%
    - Shell = 69%
  + Producer’s accuracy
    - Mud = 93%
    - Oyster = 89%
    - Shell = 83%
    - Sand = 78%
  + Overall accuracy = 89.6%