

# CAERNARVON OPERATIONAL PLAN 2021

From December through May, the intent is to operate the diversion to maintain the seasonal average salinity at the 15 ppt line illustrated in the map below. December- May operations will be primarily based on data from the Black Bay nr Stone Island gauge specified by the map (Figure 1) and graph below (Figure 2). From June through November, Caernarvon operations will be based on the monthly salinity range at the 5 ppt line specified by the map (Figure 1) and graph (Figure 3) below, utilizing the Crooked Bayou gauge. The structure will be operated when the 14-day moving average salinity is within or above the long term data range for the gauge(s) in use. When the moving average drops below the low trigger (the greater of the long term average minus 1SD or 5ppt) the diversion operations will be maintained at a minimum flow of 500cfs until the moving average re-enters the operational range.\* Operational settings are not to exceed 7,500 cfs.

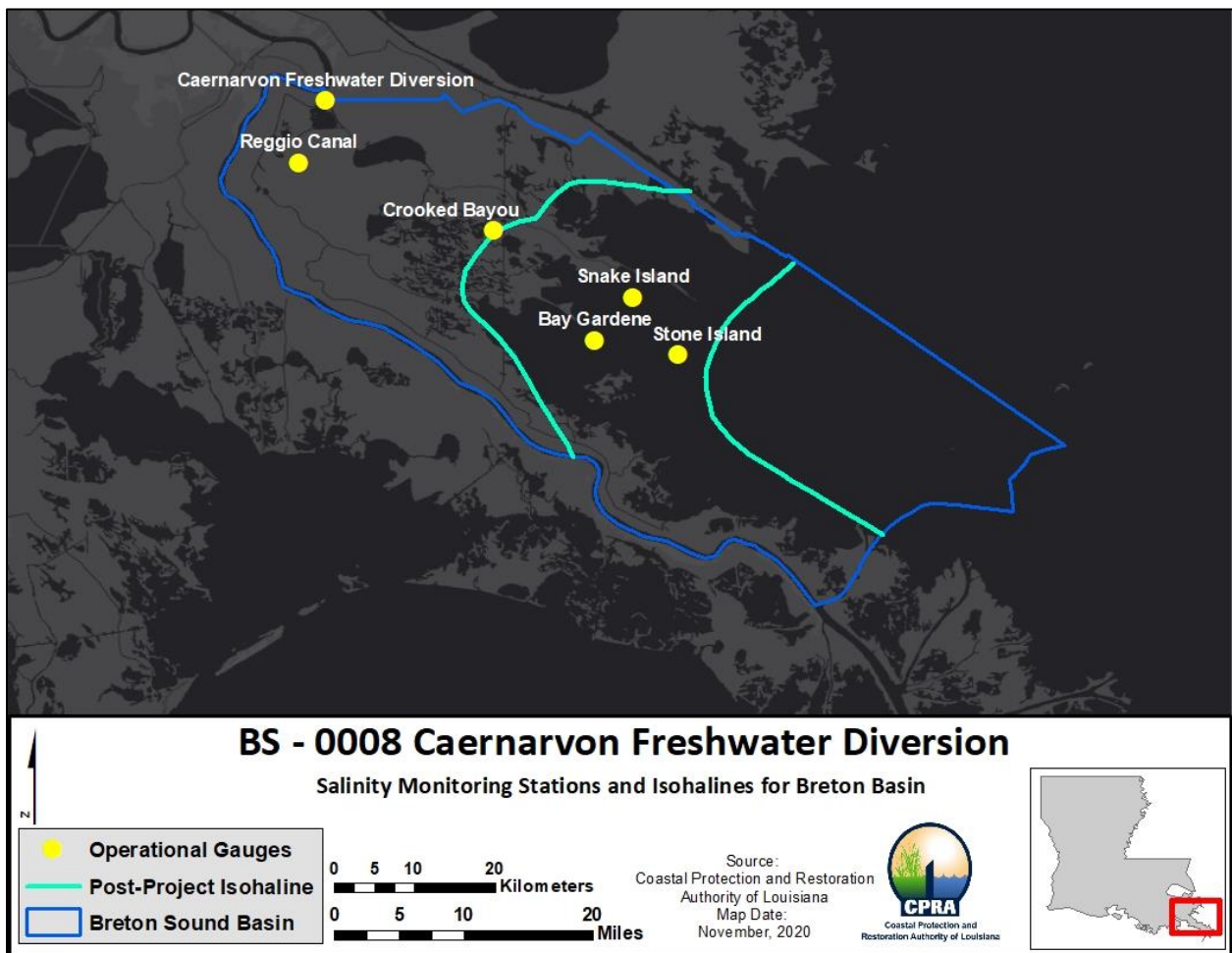


Figure 1. Map of salinity gauges and isohaline lines in Breton Sound basin to be used for guidance and operation of the Caernarvon Freshwater Diversion.

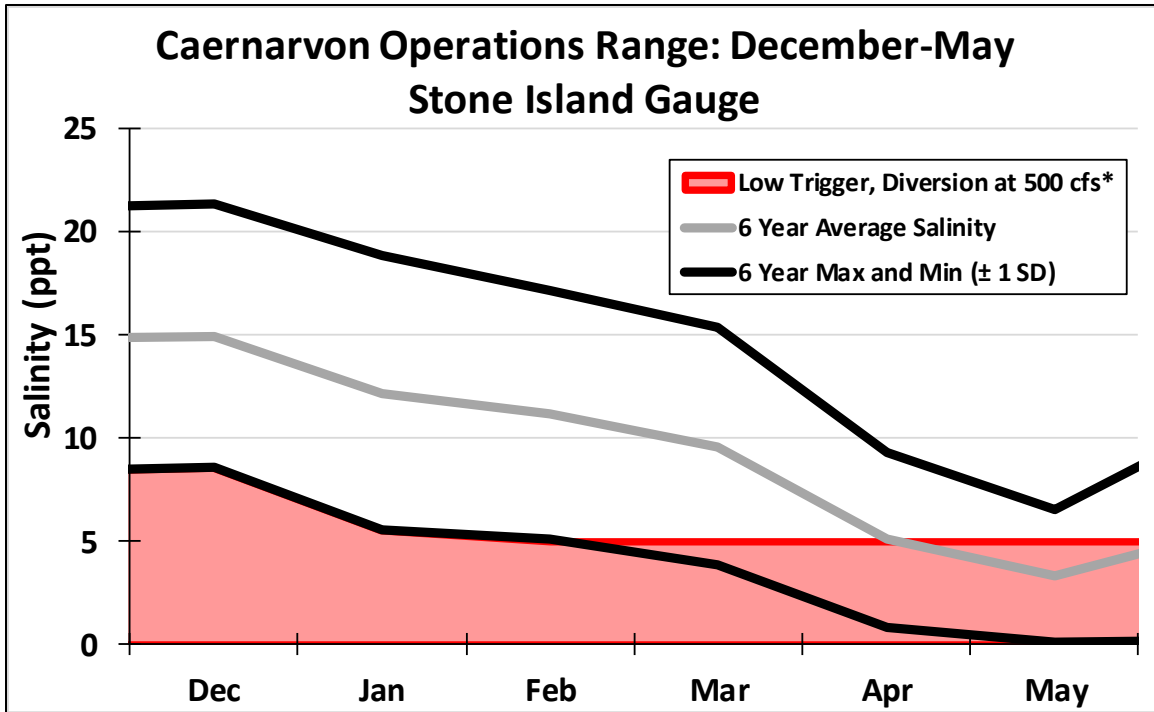


Figure 2. Six year average ( $\pm 1$  standard deviation) salinity from the Black Bay nr Stone Island Gauge (USGS site 073745275). From December through May the Caernarvon Freshwater Diversion structure may be operated when the 14-day moving average salinity is within or above the data range. Operations will be decreased to the 500 cfs minimum if the moving average drops below the low trigger.\*

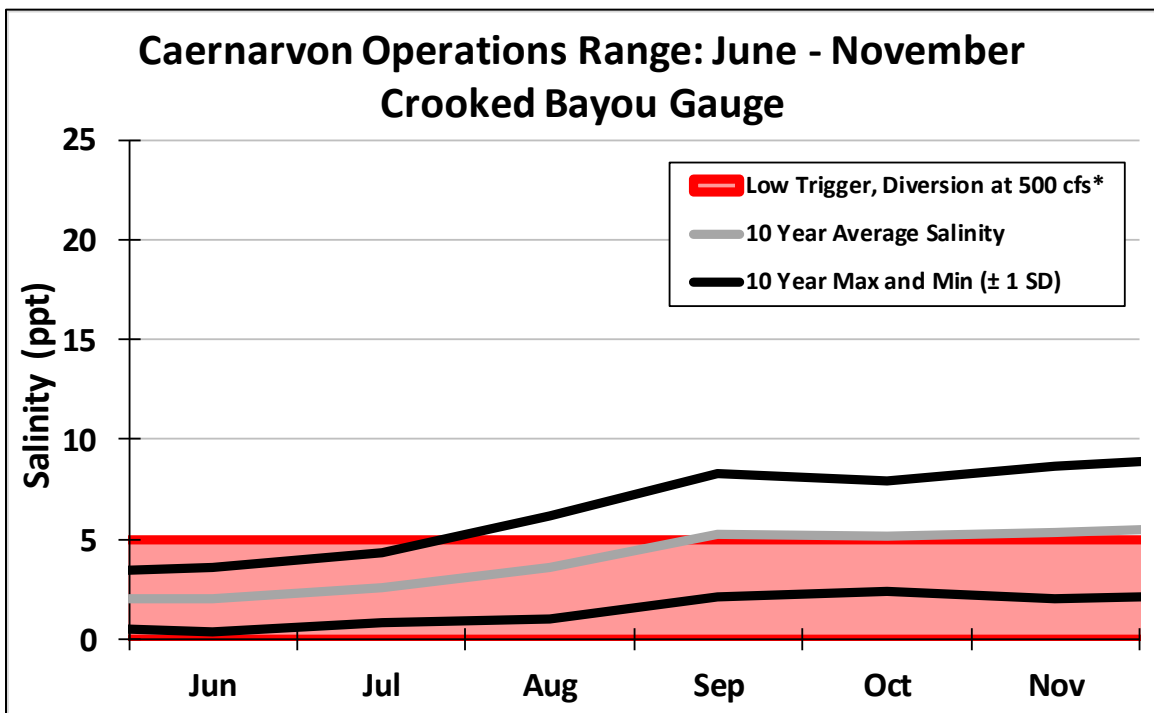


Figure 3. Ten year average ( $\pm 1$  standard deviation) salinity from the Crooked Bayou Gauge (USGS site 073745257) gauge. From June through November the Caernarvon Freshwater Diversion structure may be operated when the 14-day moving average salinity is within or above the data range. Operations will be decreased to the 500 cfs minimum if the moving average drops below 5ppt.\*

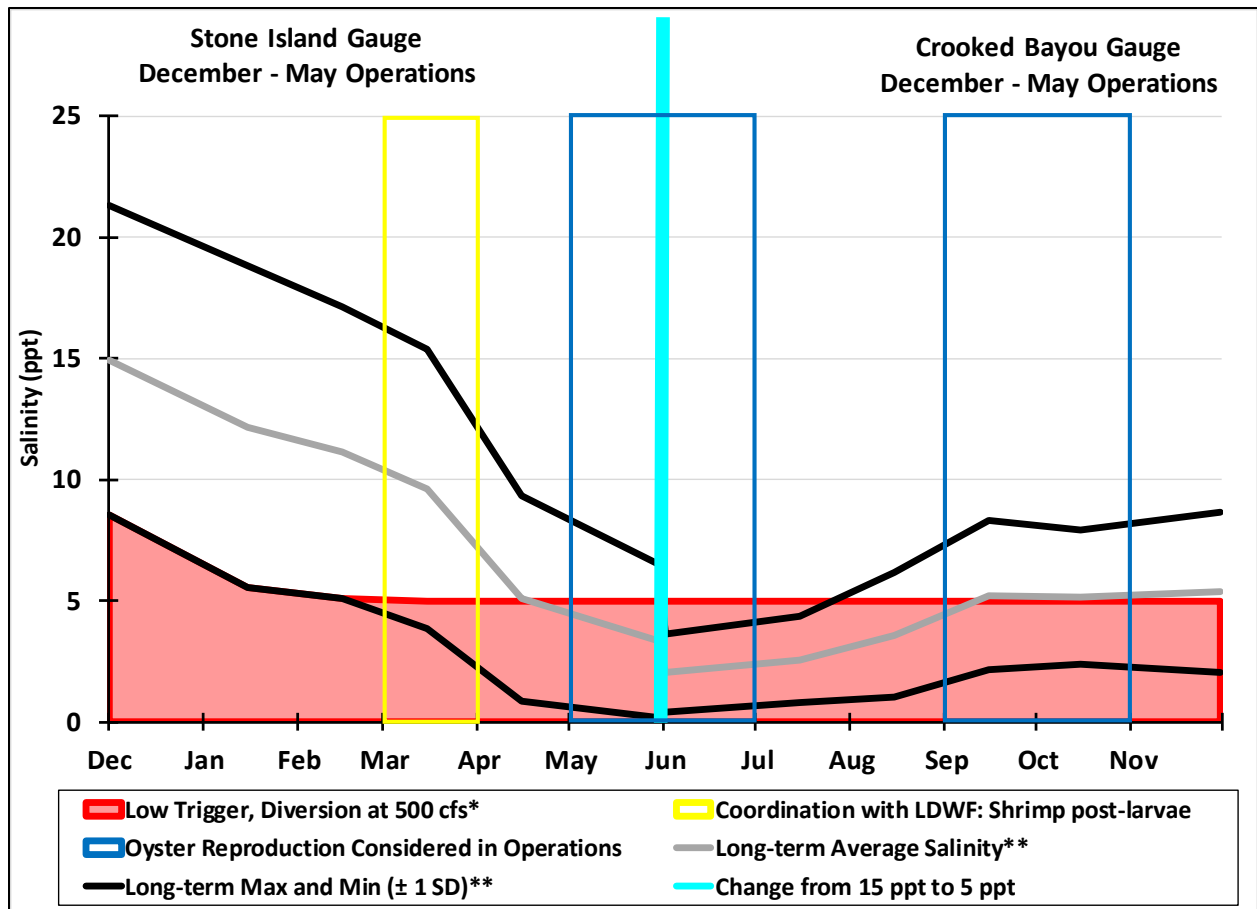


Figure 4. Long-term average (+1 standard deviation) salinities from the Black Bay nr Stone Island Gauge (USGS site 073745275) from December through May, and the Crooked Bayou Gauge (USGS site 073745257) from June through November. The Caernarvon Freshwater Diversion structure may be operated when the 14-day moving average salinity is within or above the data range. Operations will be decreased to the 500 cfs minimum if the moving average drops below the low trigger\*. Species specific considerations are shown in yellow and blue. \*\* Long-term salinity average and standard deviation at Stone Island Gauges include six years of data (all that is available), at the Crooked Bayou gauge it includes the previous 10 years of data.

\* Discharges may deviate from operational plan as outlined below:

- Emergency, maintenance and local parish situations will be evaluated on a case-by-case basis to determine operational needs. The Caernarvon Interagency Advisory Committee shall be notified if operations outside of the plan are required.
- Structure may be operated for public relations and/or educational purposes, though output is not to exceed 5,000 cfs for a duration of no longer than 2 hours.
- Coordination with LDWF during post-larval brown shrimp migration period and oyster reproductive seasons to assist in operational decisions/adjustments to maximize benefit.