### Comparison Report Overview (old vs. new)

\* Denotes sections that are only shown when differences are detected

* **Overview tables**
  + N\_Data old vs. new for each parameter
    - Difference (+/- since last export)
* **\* Program Differences**
  + N\_programs old vs. new, highlighting differences
* **\* Column Differences**
  + List columns between exports, highlighting differences
* **Data Counts by Program**
  + For each parameter, # of data for each Program in New vs. Old exports
* **SEACAR Flag Codes Overview**
  + For each parameter and program:
    - N\_total – total amount of values flagged with any QAQC Flag
    - For each flag detected: count of each flag
      * Currently all flags detected & displayed, will alter to only display *Q1-5, 8, 15-17*
* **QAQC Flag Check** – uses *Database\_Thresholds.xlsx* export file from IndicatorQuantiles GitHub. Applies flags within the script, comparing the results with the values that are flagged with the respective QAQCFlagCodes in the Database. If flag codes are being correctly applied, these values should match one another. The below tables are only displayed when there are values flagged either within the script or in the database; if there are none, “No quantile/threshold values detected” will be printed.
  + **Quantile Check**
    - **N\_high**: Values flagged by the script as being above the quantile value
    - **N\_high\_flagged**: Values flagged by the database as *17Q* (above quantile)
    - **N\_low**: Values flagged by the script as being below the quantile value
    - **N\_low\_flagged**: Values flagged by the database as *16Q* (below quantile)
    - For any discrepancies between the above values, the script will print tables containing the values for further examination
      * i.e. if N\_high is 8 and N\_high\_flagged is 0, then those 8 values will be provided
  + **Threshold Check**
    - Same columns as above, but **\*\_flagged** columns checking for presence of either:
      * High values: *2Q* – Exceeds maximum threshold; verified in raw data or not
      * Low values: *4Q* – Below minimum threshold; verified in raw data or not
    - Additional “N\_included” column to check that high or low threshold values are being correctly excluded (Include=0). Values for this column should always be 0; if any amount of data being flagged as high or low threshold has Include == 1 they will be listed in this column to be investigated further
  + **Expected Values Check**
    - Checks for SEACAR Flag *15Q* by checking the following Parameters for unexpected values and seeing if *15Q* flag is being correctly applied
      * Discrete WQ – Secchi Depth (VOB, 999, >B)
      * SAV – Braun Blanquet (0, 0.1, 0.5, 1, 2, 3, 4, 5)
      * SAV – Modified Braun Blanquet (0, 0.1, 0.5, 1, 2, 3, 4, 5)
      * Percent Cover (0 to 100 [inclusive])
        + SAV, CW, Coral
      * Total/Canopy Percent Cover (0 to 100 [inclusive])
        + CW
      * Percent Live Tissue (0 to 100 [inclusive])
        + Oyster
      * Percent Occurrence (0 to 100 [inclusive]; values should match grid #/100 intervals)
        + SAV
      * Presence/Absence (Boolean)
        + SAV, Coral, Nekton
      * Number of Oysters Counted (Dead, Live, Total) – 0 or positive integers
        + Oyster
  + **Secchi Depth Visible on Bottom**
    - Analysis performed at the Program level to provide counts of data for the following checks:
      * *N Secchi VOB*: Count of values where TotalDepth == ResultValue
      * *N Flagged 8Q*: Count of values where SEACAR\_QAQCFlagCode contains 8Q designation (Original value = “ON BOTTOM”)
      * *N Flagged 1Q*: Count of values where SEACAR\_QAQCFlagCode contains 1Q designation (Calculated by SEACAR)

### Comparison Report Export Workbook

CompareCombinedTables.R also exports a workbook outlining much of the same information included in the .PDF version of the reports. The workbook contains the following tabs and information:

* Filename Summary:
  + Lists all export combined table filenames used within the script. WQ files are listed as dates extracted from the filenames for both “old” and “new” filenames.
* Program Differences:
  + Contains the information included in the “Program Differences” tables in the .PDF report. Shows a count of number of records for each ProgramID and Parameter combination for both “old” and “new” files.
* SEACAR QAQCFlag Overview:
  + Provides an overview of the counts of the following QAQCFlags in the “new” export by ProgramID and Parameter:
    - 1-5Q, 8Q, 15-17Q
* ValueQualifiers by Program:
  + An overview of ValueQualifier counts by ProgramID/ProgramName, ValueQualifierSource, and ActivityType
* ValueQualifiers Overview
  + An overview of the counts of all unique ValueQualifier values (including combinations, i.e. “AYQ”) by ParameterName, ValueQualifierSource, and Include status (0 or 1). Note: the Include values are not necessarily being determined by the ValueQualifier status, they could be Include 0/1 for other reasons.