



**Finalization of STORET Database for Sarasota County
Bays and Estuaries Ambient Monitoring Data (BAYRIVER)**

Final Report

Submitted by:

**L. Kellie Dixon, Ph.D.
Mote Marine Laboratory
1600 Ken Thompson Parkway
Sarasota, FL 34236
(941) 388-4441, Ext. 341**

Submitted to:

**Mr. John Ryan
Stormwater Environmental Utility
Sarasota County Public Utilities Department
1001 Sarasota Center Boulevard
Sarasota, Florida 34240
(941) 650-2159**

**January 5, 2018
Mote Marine Laboratory Technical Report No. 2123**

Finalization of STORET Database for Sarasota County Bays and Estuaries Ambient Monitoring Data (BAYRIVER)

Since February 1998 to present, Mote Marine Laboratory has performed the ambient monitoring of the estuarine waters of Sarasota County. From 1998 through October 2007, monitoring of the Sarasota County portion of the Myakka River was also performed. Data, originally submitted in tabular format only to Sarasota County, also began to be submitted to USF – Florida Center for Community Design + Research, School of Architecture to be incorporated in the County’s Water Atlas (<http://www.sarasota.wateratlas.usf.edu/>). Formats submitted to USF included STORET-required and compatible fields. Data were eventually uploaded by the Atlas to FDEP through the STORET Import Module (SIM) and related “checker” scripts. A number of iterations were performed to finalize formats and achieve uploads to both the Water Atlas and to FDEP. The sampling approach of Mote, however, using multiple boats and crews sampling simultaneously, occasionally generated apparently duplicate data when the recommended formatting for ActivityIDs was used. These issues were resolved and eventually older data, pre-2003, was similarly uploaded. A brief review of STORET-resident Sarasota County data collected by Mote indicated inaccuracies or missing metadata and ancillary fields which make the full use of these data problematic and do not fully reflect the rigorous quality control/quality assurance conditions under which these data were collected and analyzed. Earlier duplication of ActivityIDs made the station identification of some data suspect as well.

The FDEP-hosted Florida STORET database was to be superseded and was closed to additions or corrections as of December 31, 2017 as FDEP transitioned to the Watershed Information Network (WIN) environmental database. WIN replaces Florida STORET as an active data repository for non-regulatory data. Discussion with FDEP STORET and Water Atlas project managers indicated that the most expeditious approach would be to remove all of Sarasota County data collected and analyzed by Mote under the BAYRIVER Project and replace data with a new upload prior to the December 31, 2017 deadline, using the process typically employed by the Atlas and FDEP and incorporating the improvements and enhancements that have been collectively made since 2003.

Under Sarasota County Purchase Order No. 181153, Mote Marine Laboratory (Dr. L.K. Dixon) interacted with the USF Water Atlas (Mr. Jason Scolaro) and FDEP (Ms. Lisa Schwenning) to revise the ambient monitoring data of the BAYRIVER project sourced to 21FLSARA (Sarasota County). At all steps in the process, the utility of the data for future Impaired Waters Rule (IWR) downloads was considered to be of the paramount importance.

BAYRIVER data removed included data collected and analyzed by Conservation Consultants, Inc. (CCI) from 1995-January 1998. These data are also housed in Legacy STORET, are identified in the Atlas database as sourced to Legacy STORET, are not presently retrieved for IWR runs, and so were deleted but not reloaded to Florida STORET in this process.

Mote provided 393,768 records of data to the Atlas with revised ActivityIDs and all elements required by FDEP’s SIM. Data were for all dates, times, estuary and river stations, and parameters sampled and analyzed by Mote between and including February

1998 through September 2017. Data from field blanks (n=6,950) collected by Mote using analyte free water exposed to field-cleaned sampling equipment (Niskin bottles) were also included.

After review and incorporation by the Atlas, and transfer to FDEP, the final data for BAYRIVER, as held by FDEP, were merged with the data submitted by Mote using ActivityID-Characteristic-Fraction and reviewed line by line. A copy of the merged data is attached as an electronic appendix to this report.

The final FDEP STORET database for BAYRIVER contains 386,818 records. Field blank data are not included but are not used for generation of IWR runs. As these data did not exist in the database before this correction effort, no further attempt was made to determine the SIM characteristics that prevented them from loading.

All results were confirmed to have equivalent values in both Mote and FDEP databases, and since FDEP obtained data from the Atlas, are considered equivalent in the Atlas database as well. Although minor differences occasionally exist in significant digits reported (i.e. 1.6 vs. 1.60), this was likely an artifact of the transfer of data across multiple analytical platforms (from .txt file to .xlsx to .acddb to .xlsx) during the review process and whether data are handled as text or numeric values. These differences should not effect IWR calculations and can be further deduced if needed from detection limits supplied. In Florida STORET, values which were “*Non-detect” also had no result units displayed, but result units are the same as detection limit units which are available. There were some slight differences between Mote-supplied and FDEP data for relative depths and activity depths for the characteristics of wave height, bottom depth, and Secchi depths during late 2016-2017 due to the order in which SIM assigns relative depths for a given ActivityID. As these three parameters clearly apply to specific portions of the water column regardless of assigned relative depth or activity depth, this discrepancy was also tolerated. Some result comments submitted by Mote as “L” or “S” were transformed to “**L**” or “**S**”, again not altering the value or utility of the data. The field “analytical” procedures which Mote cited as sourced from FDEP (FT-1400, FT-1100, etc) were listed as sourced by 21FLSARA as STORET did not recognize the FDEP-sourced procedure code. Finally, analyses or measurements which did not require a preparation step were sometimes transformed to report an analytical or preparation date and time identical to collection date and time. As the preparation time for a salinity measurement is meaningless, these differences can also be ignored.

The final BAYRIVER data held by Florida STORET has been confirmed for future IWR runs. A complete download of the BAYRIVER project data as provided by FDEP is also attached as an electronic appendix. Data for the project BAYRIVER from October 2017 forward will be submitted under the new FDEP WIN guidelines.

Acknowledgements: The extensive and cheerful assistance, coding, and repeated downloads by Ms. Lisa Schwenning, FDEP Office of Watershed Services, STORET Lead, and Mr. Jason Scolaro, USF Water Institute, Database Team Leader, made this work possible.