Loxahatchee River District

Water Reclamation | Environmental Education | River Restoration

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D. Albrey Arrington, Ph.D., Executive Director

MEMORANDUM

TO: Albrey Arrington, Ph.D., Executive Director

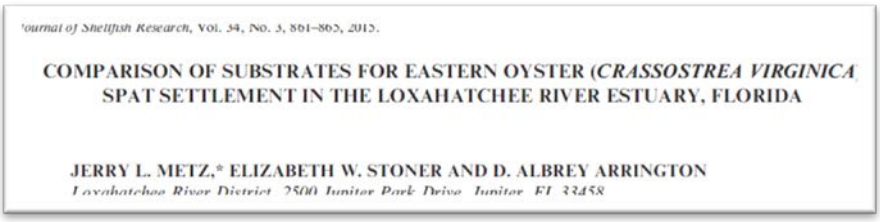
FROM: Bud Howard, Director of Information Services

DATE: December 11, 2015

SUBJECT: Monthly Governing Board Update for November 2015

WildPine Ecological Laboratory

Oyster Monitoring Paper Published In *Journal of Shellfish Research*



Journal of Shellfish Research, Vol. 34, No. 3, 861–865, 2015.

COMPARISON OF SUBSTRATES FOR EASTERN OYSTER (*CRASSOSTREA VIRGINICA*) SPAT SETTLEMENT IN THE LOXAHATCHEE RIVER ESTUARY, FLORIDA

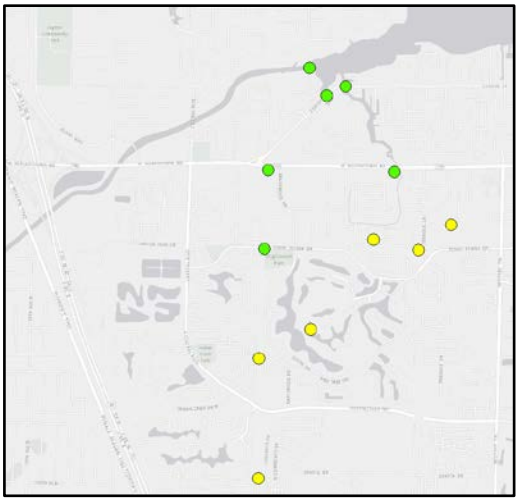
JERRY L. METZ,* ELIZABETH W. STONER AND D. ALBREY ARRINGTON

Loxahatchee River District, 2500 Jupiter Park Drive, Jupiter, FL 33458

The WildPine Lab is excited to announce the publication of their work in the *Journal of Shellfish Research*. The paper, titled "Comparison of substrates for eastern oyster (*Crassostrea virginica*) spat settlement in the Loxahatchee River estuary, Florida", describes a superior method for monitoring oyster spawning by using travertine tile instead of adult oyster shell. The paper was co-authored by Jerry, Betsy, and Albrey, and is Jerry's first publication in a peer-reviewed, scientific journal.

New Water Quality Sampling Partnership with Town of Jupiter

As part of our efforts to improve our understanding of frequent poor water quality conditions in Jones and Sims Creeks, we have now established 6 new sampling sites (yellow symbols in figure), for 10 total in the basin. We have partnered with the Town of Jupiter staff to perform the field data and sample collection, and District staff provided training and will perform the analysis. Our plan is to sample for bacteria monthly and nutrients bi-monthly, with some sucralose testing sometime in the future. This work stems from our long-term water quality monitoring program that identified this as an area of concern, and a subsequent study funded by the Town and LRPI.

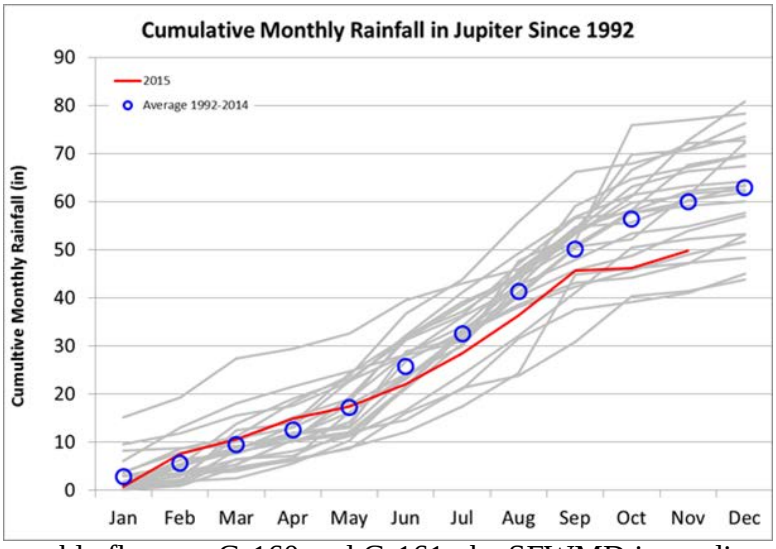


Riverkeeper Project

In November, staff collected water samples from all 46 monitoring sites throughout the watershed. Water quality conditions were generally good, but with some very notable exceptions. Six new stations from the Jones and Sims Creek drainage basins showed poor results for total phosphorus, fecal coliform bacteria and chlorophyll. Nitrate concentrations were also some of the highest on record in the Kitching Creek basin (stations 108, 106, and 101), with the most elevated concentrations occurring in 108 (0.317 mg/L).

Hydrologic and Datasonde Monitoring

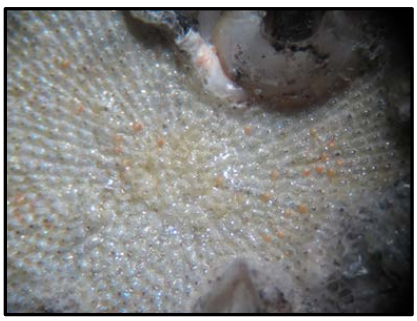
Total rainfall for the month of November measured at the LRD was 4.3" with a single daily total of 2.2" occurring on November 21. Historical average monthly rainfall for November is 3.8". Rainfall measured from 10 stations across the watershed was slightly less at 3.6". This brings the total annual rainfall for the watershed to 47.8", about 10 inches less than normal by this time of the year. This shortfall appears due in part to a drier wet season, especially during October when we had less than 1" of rain.



As expected, river flows have diminished to typical dry season conditions with modest flow at Lainhart Dam. With measurable flows at G-160 and G-161, the SFWMD is sending supplemental flow to the river. The decreased flows have resulted in increased salinities throughout the river, but within the typical historical range for November. There was no flow through the S-46 flood control structure.

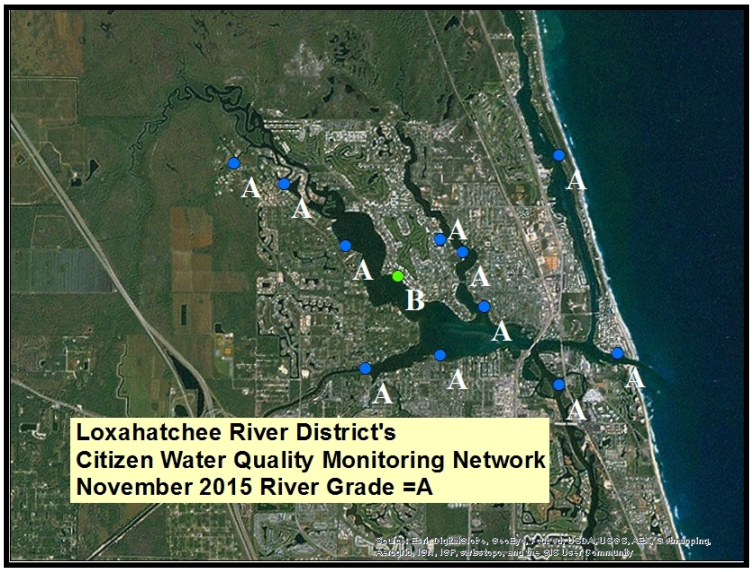
Oyster Recruitment Monitoring

Our oyster monitoring data suggests that the unseasonably warm temperatures may be driving an extended oyster spawning season. The monitoring period from October 16 through November 17 typically shows little oyster spawning, but this year spawning remained active. The Southwest Fork was active with the upstream site having an average of 5.3 spat/shell, while the downstream site was the most active with 13.5 spat/shell. Settlement was considerably less in the Northwest Fork with the highest density at the downstream site of 2.7 spat/shell while the upstream site had only 0.7 spat/shell. November 2015 average water temperature remained about 26-27 °C (79-81 °F), the temperature at which we observe the most settlement activity. Typical average temperature in November is 22-25°C (72-77 °F). Interestingly, most of the settled spat were < 1 mm, indicating that settlement had been very recent, though one spat in the Southwest Fork measured 24 mm. Also, the bottom of most shells, particularly in the NWF, had up to 90% cover of "lace bryozoan" (pictured). It appears that oyster spat settlement may be inhibited by bryozoan coverage, because we find more than three times the number of spat on the top than the bottom of the shell. We also observed this during the travertine tile experiment conducted earlier this year and discussed in the aforementioned travertine tile publication. In 2016 we will shift to using travertine tiles to conduct oyster spat monitoring, and both the top and bottom of tiles will be examined to document spat densities and the colonization of other organisms.



Volunteer Water Quality Monitoring

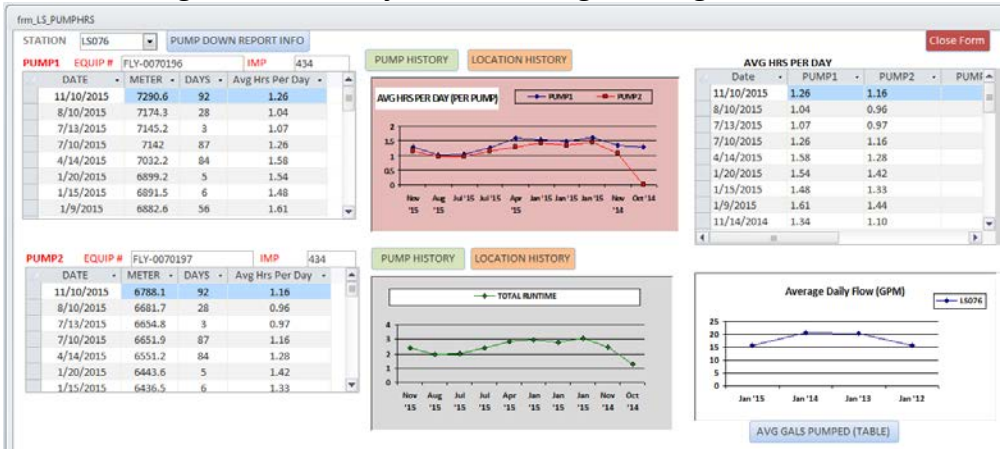
The volunteer water quality grade for November continues to be excellent, as it scored an overall “A”. Both the low rainfall and diminished freshwater flows helped to keep the water quality in an excellent state. The salinity, pH, and clarity at most of the sites have remained within their optimal ranges, with few exceptions.



Information Technology

New Server Migration & Folder Organization
Joe has been coordinating and implementing the migration of user data files, as well as refinements to the directory structure on our new server.

CMMS Tools
Dave has been developing tools to summarize and visualize the maintenance and asset data recorded by staff and stored in our computerized maintenance management system (CMMS). These tools will provide valuable information back to staff as we work through the transition of implementing our new CMMS, and helps staff understand and capitalize on the data they capture. Once implemented, our new CMMS will provide much greater flexibility for data storage, management, retrieval and visualization.



Compliance Reporting Training
As the Operations staff shifts responsibilities among staff with Gary’s pending retirement, Alan has been training staff on the extensive compliance monitoring reporting that we do through our data management system.

Customer Service

Payment Processing

With our quarterly bills due on November 18, our customer service team did an outstanding job processing over 15,300 payments totaling more than $2M. Nearly 5,800 (~38%) of those payments were processed very efficiently with our new digital payments tool where customers paid through their bank's online bill pay service or through our website. With highly productive staff, and the time savings through automation, we are no longer experiencing the backlog of payments to process, and our staff has the time needed to focus on important customer account research and management.

As we close out the first complete billing cycle with these new tools, we are assessing the payment patterns through the various methods. We will monitor these patterns as we *encourage our customers to pay through some digital process including: 1) online bill pay through their bank, 2) automatic debit, or 3) credit/debit card via our website. These digital payments help us be most efficient and keep our rates low*. Below is a figure showing the numbers of digital payments by day and provider.