

Louisiana Tech University Louisiana Tech Digital Commons

ANS Research Symposium

ANS Research Symposium 2019

Apr 11th, 8:30 AM - 11:30 AM

Assessing Water Quality of Redwine Creek in the Grambling, LA Area

William B. Patterson
Louisiana Tech University

Annabelle Grounds
Louisiana Tech University

Follow this and additional works at: <https://digitalcommons.latech.edu/ans-research-symposium>

Recommended Citation

Patterson, William B. and Grounds, Annabelle, "Assessing Water Quality of Redwine Creek in the Grambling, LA Area" (2019). *ANS Research Symposium*. 3.
<https://digitalcommons.latech.edu/ans-research-symposium/2019/poster-presentations/3>

This Event is brought to you for free and open access by the Conferences and Symposia at Louisiana Tech Digital Commons. It has been accepted for inclusion in ANS Research Symposium by an authorized administrator of Louisiana Tech Digital Commons. For more information, please contact digitalcommons@latech.edu.

Assessing Water Quality of Redwine Creek in the Grambling, LA Area

William B. Patterson¹, Annabelle Grounds², Hannah Roppolo³, Matthew Lacrouts³, Spencer White³, Tristen Nicholas³, and Travis Williams³

¹*Associate Professor, School of Agricultural Sciences & Forestry*

²*Undergraduate Student, School of Biological Sciences*

³*Undergraduate Student, School of Agricultural Sciences & Forestry*

The FOR 402 Watershed Management class at Louisiana Tech University has measured water quality in Redwine Creek in Lincoln and Jackson Parishes since 1998. Redwine Creek at Ansley Road in Jackson Parish (former Jackson-Bienville Wildlife Management Area) had elevated levels of phosphate at times during the period 1998 to 2016. In order to understand this observed trend, students from 2013 to the present measured water quality in Redwine Creek at five locations: near its headwaters at Fiberboard Rd. west of Grambling, Igoe Inn Rd. west of Grambling, Grambling State University at Facilities Rd., at US 80 just downstream of the City of Grambling's water treatment plant, and downstream at Ansley Rd. in Jackson Parish. Discharge (flow) was calculated based on measured velocity and cross-sectional area. Phosphate, Nitrate, Nitrite, and Ammonia concentrations were measured using Chemetrics CHEMets ampoule kits. Dissolved Oxygen and temperature were measured using the YSI ProODO Optical Dissolved Oxygen Meter. Turbidity was measured using the MicroTPW Field Turbidimeter. Water pH was measured using the Oakton pHTestr 20 double junction pH meter. Discharge or flow of Redwine Creek increased downstream from Fiberboard Rd. to Igoe Inn Rd., to Grambling State University, to US80, and peaked at Ansley Rd. Phosphate and Ammonia concentrations at US 80 were elevated beyond proposed water quality impairment levels for EPA's South Central Plains Ecoregion. The US80 location of Redwine Creek also had the highest temperature and lowest Dissolved Oxygen of all the sampled locations, despite having the second highest flow. Results indicate that the location of Redwine Creek at US80 has impaired water quality for phosphate and ammonia, and that the City of Grambling's water treatment plant may need improvements to maintain the water quality that upstream locations show. Further measurements will include presence or absence of fecal coliform bacteria at each location. Abundance of fish species and macroinvertebrates will also be sampled and be related to tolerance to pollution.