

Appendix G

Coastal Resiliency Assessment

Purpose

The Suwannee River Water Management District (District) conducted a planning level assessment to determine if fresh water supplies in coastal counties (Dixie, Jefferson, Levy, and Taylor) are likely to become constrained due to sea level rise (SLR) throughout the planning horizon.

Methods

Based on guidance established by the Resilient Florida Grant Program (section 380.093, F.S.), this planning level assessment evaluated the effects of both intermediate-low and intermediate-high SLR projections reported by the National Oceanic and Atmospheric Administration (NOAA) for the year 2050 (Sweet et al., 2017). The University of Florida (UF) GeoPlan center developed a model to map NOAA's SLR projections by county in the State of Florida, which added the projected increase in sea levels for a range of scenarios to mean higher high water (MHHW) conditions (UF GeoPlan Center, 2020). The GeoPlan Center's model indicated that SLR projections range from 0.8 to 1.0 ft and 1.9 to 2.1 ft for the intermediate-low and intermediate-high projections, respectively, across the state of Florida. In the Western Water Supply planning (WWSP) region, the intermediate-low projection represents 0.9 ft of SLR, and the intermediate-high projection represents 1.9 ft of SLR. This assessment used the GeoPlan Center's hydro-connectivity inundation model that excluded isolated inundated areas that were not hydrologically connected to an ocean or bay via a major waterway. Using geographic information systems (GIS) software, the spatial extent of surface inundation for the intermediate-low and intermediate-high SLR scenarios was intersected with the locations of current water treatment plants (WTP), wastewater treatment plants (WWTP), and permitted consumptive use wells to determine potential constraints posed by SLR. For any infrastructure that directly intersected with the inundation surfaces, site-specific information was gathered and summarized in a table to assist with the development of any necessary water supply development (WSD) or water resource development (WRD) project.

Results

Surface inundation due to projected SLR at both the intermediate-low and intermediate-high scenarios is expected to occur across all coastal counties in the WWSP region (Figure G1). The resiliency assessment indicated that no WTPs or WWTPs are likely to be constrained by projected surface inundation due to SLR at both the intermediate-low and intermediate-high projections (Figures G2-G5). Four consumptive use wells are likely to be constrained by projected SLR in both scenarios (Table G1; Figures G2-G5). Site-specific information will be used to determine the need for WSD or WRD projects to mitigate or prevent adverse impacts caused by projected SLR.

Table G1. Impacted consumptive use wells at intermediate-low and intermediate-high SLR projections

| County | Use Type | Status | Aquifer | Permit ID | Station ID |
|--------|------------------|--------|---------|-----------|------------|
| Levy | LRA ^a | Active | UFA | 221192 | -151320001 |
| Levy | CII ^b | Active | UFA | 217164 | -131306004 |
| Levy | LRA | Active | UFA | 219520 | -111335001 |
| Taylor | CII | Active | UFA | 218799 | -70736001 |

^aLandscape/Recreational

^bCommercial/Industrial/ Institutional



Figure G1. Overview of projected SLR inundation surfaces in the WWSR region

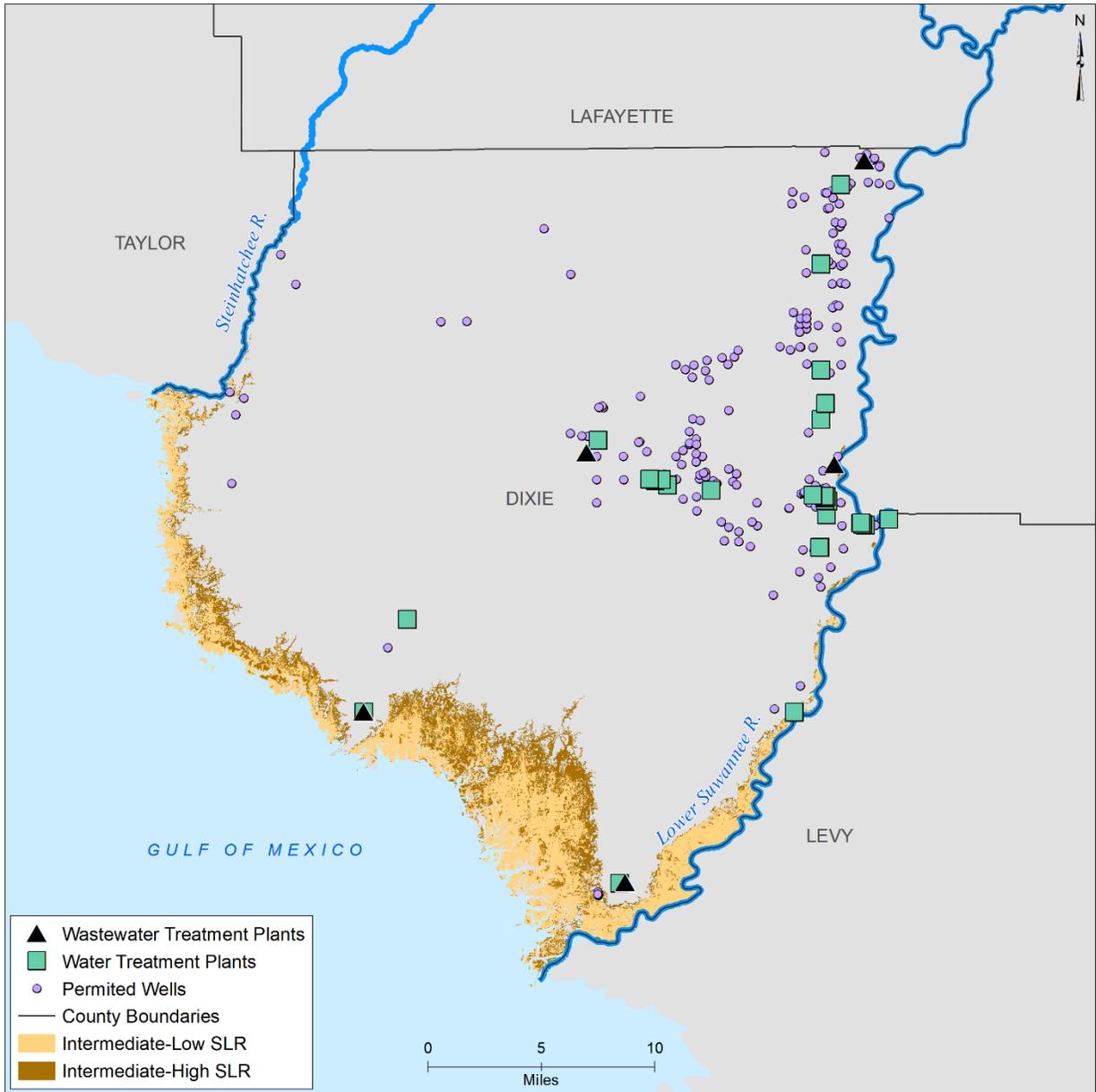


Figure G2. Map of projected SLR inundation surfaces and water supply infrastructure in Dixie County

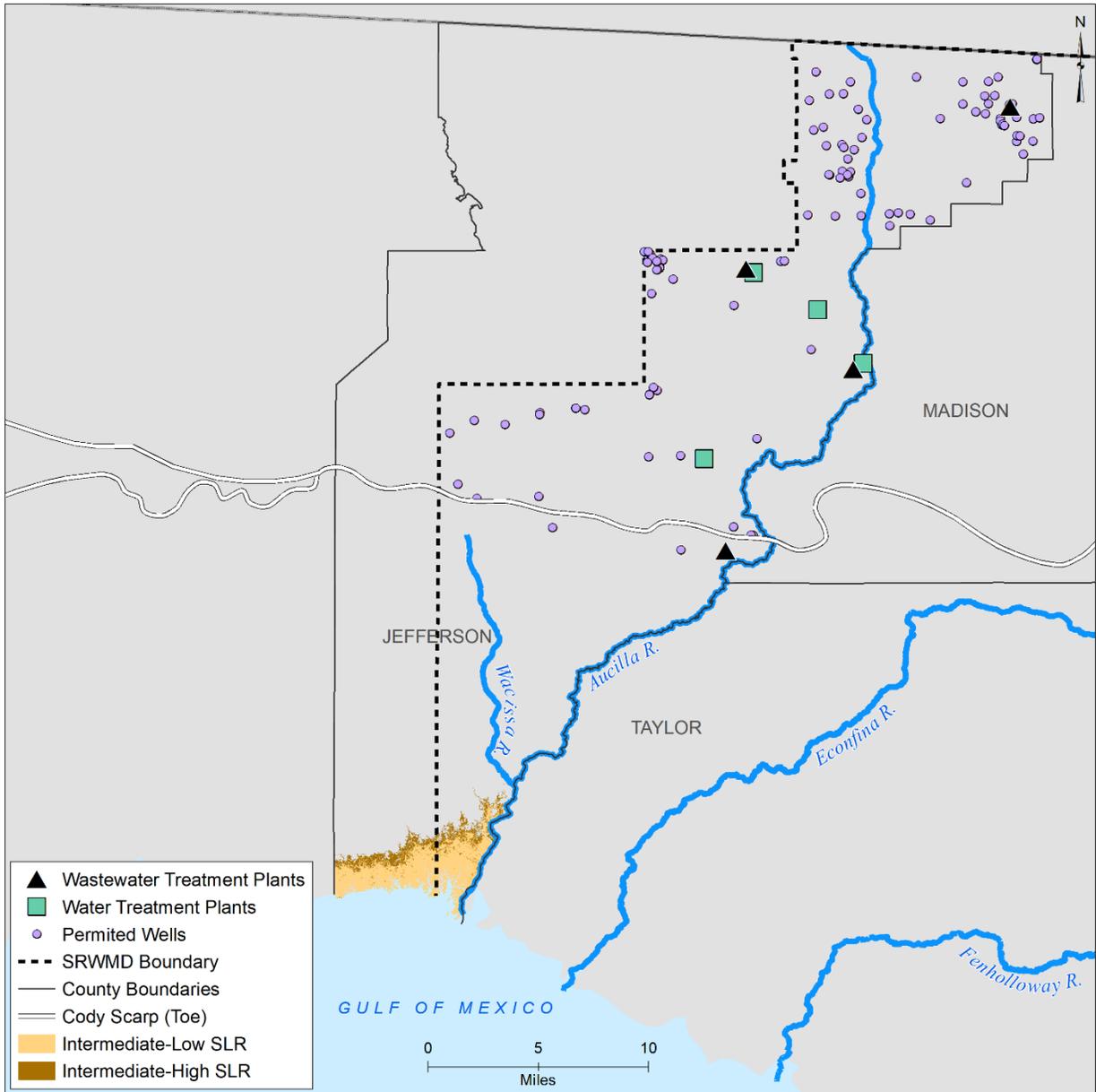


Figure G3. Map of projected SLR inundation surfaces and water supply infrastructure in Jefferson County

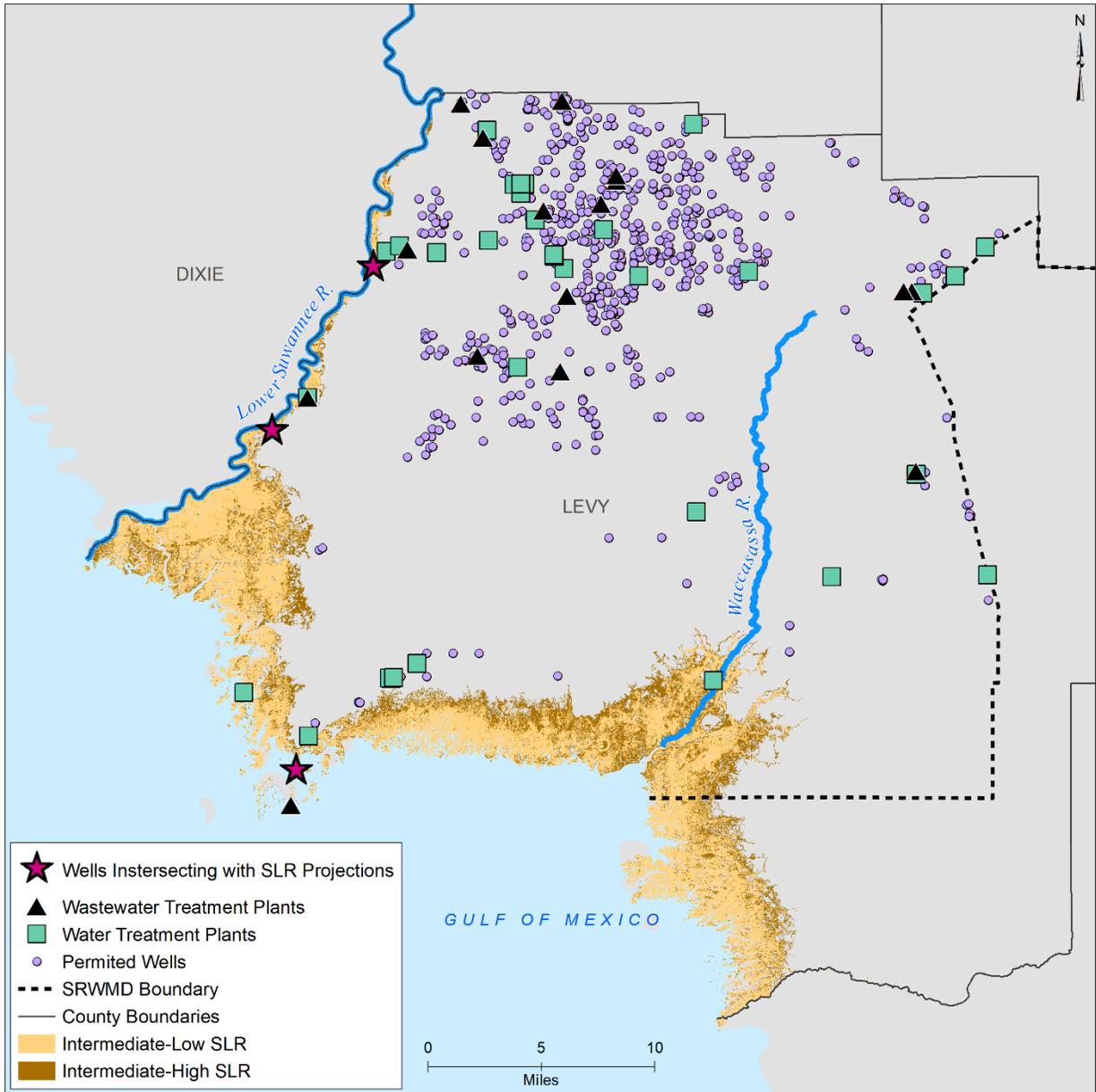


Figure G4. Map of projected SLR inundation surfaces and water supply infrastructure in Levy County

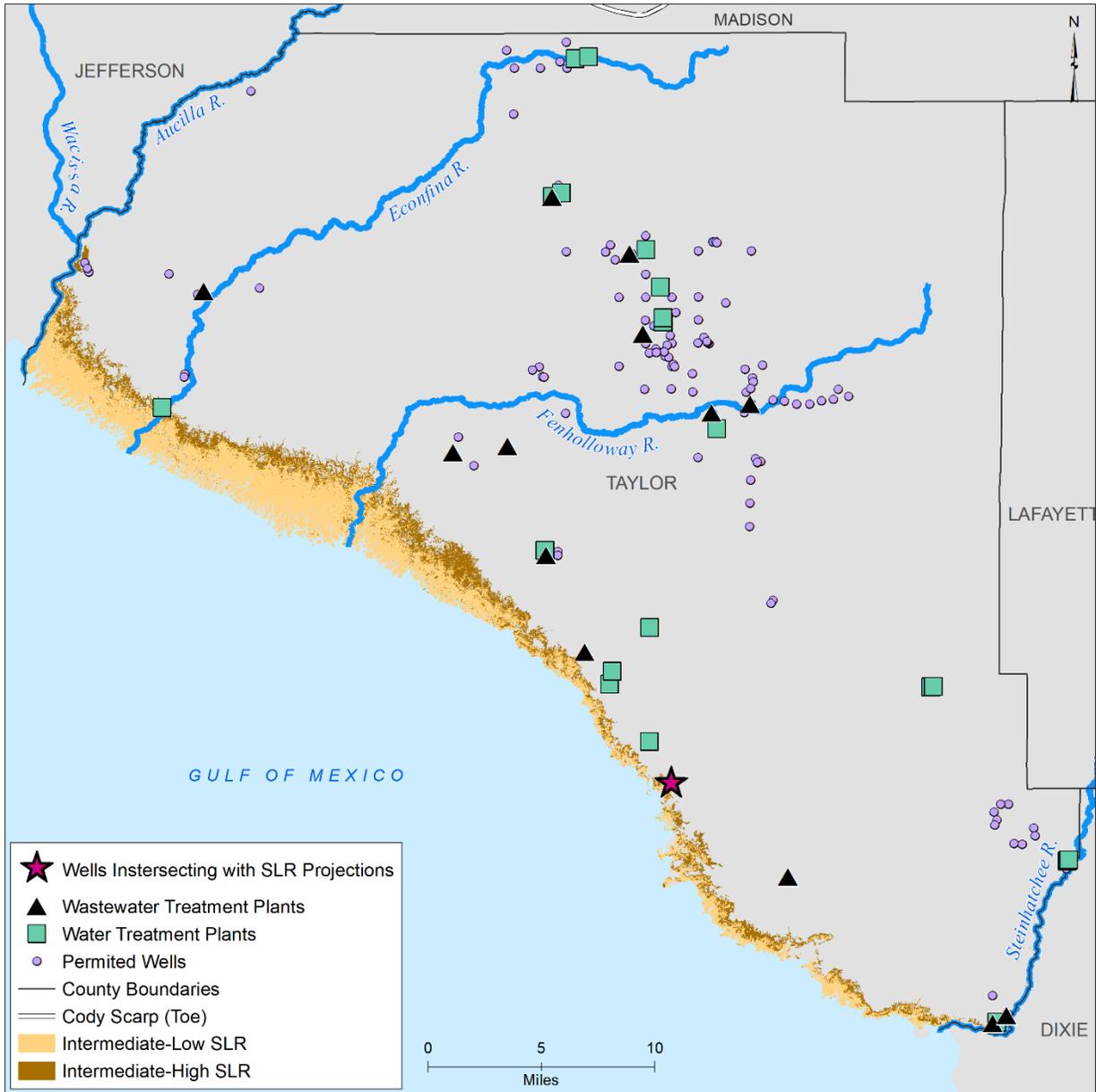


Figure G5. Map of projected SLR inundation surfaces and water supply infrastructure in Taylor County

References

Sweet, W. V., Kopp, R. E., Weaver, C. P., Obeysekera, J., Horton, R. M., Thieler, E. R., & Zervas, C. (2017). *Global and regional sea level rise scenarios for the United States*. National Oceanic and Atmospheric Technical Report NOS CO-OPS 083. U.S. Department of Commerce, National Ocean Service, Center for Operational Oceanographic Products and Services.

University of Florida GeoPlan Center. (2020). *Sea Level Scenario Sketch Planning Tool – Phase 4*. <https://sls.geoplan.ufl.edu/download-data/>. Accessed September 9th, 2022.