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Research Objectives: Determining past water quality experiences in Volusia County, Florida.

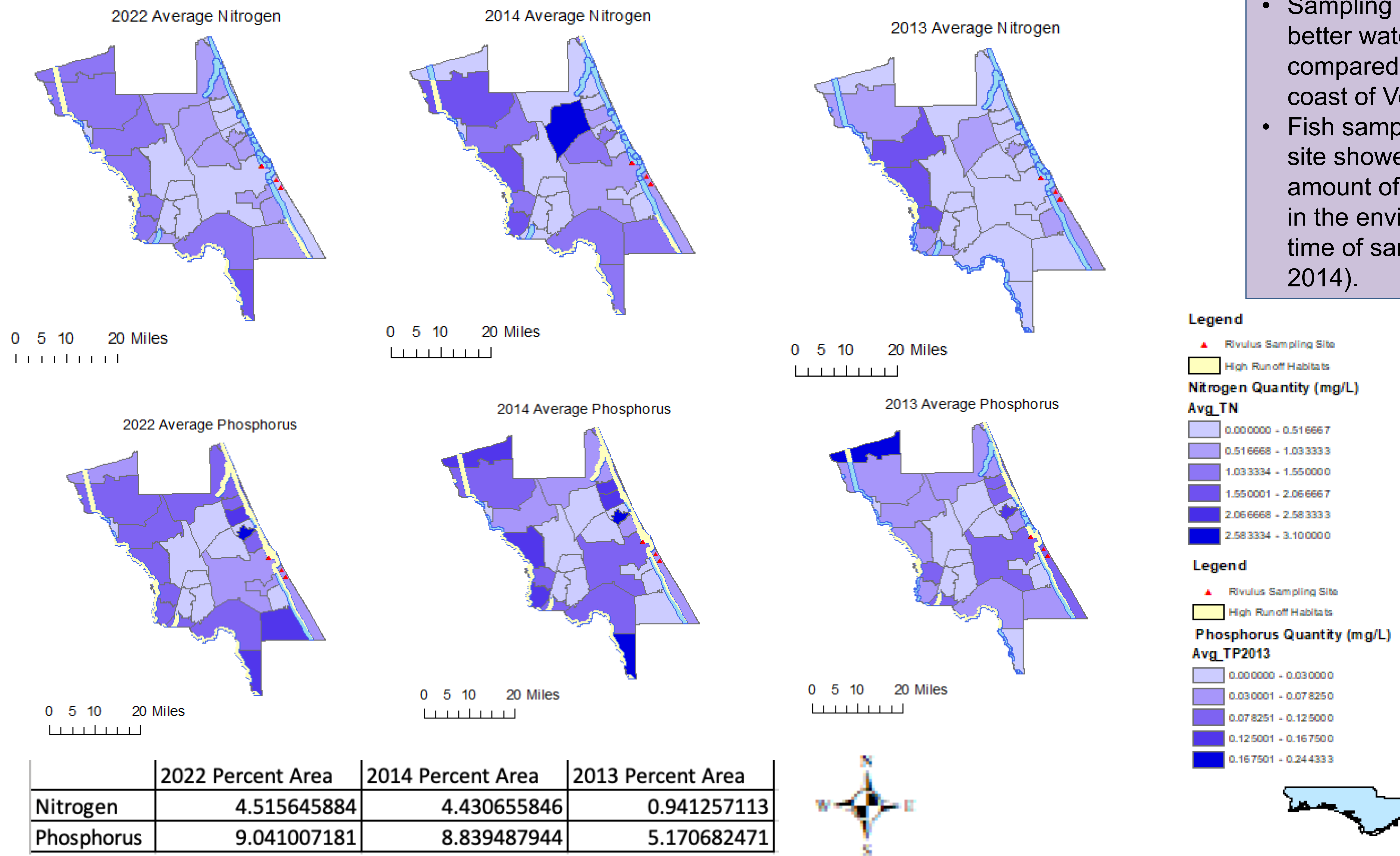
Introduction:

- Transgenerational plasticity (TGP) is when the environment of the parent influences the phenotype of the offspring.
- Rivulus mangrove fish (*Kryptolebias marmoratus*) were sampled from Volusia County Florida in 2013 and now ten years later are evaluating what role toxin exposure plays in TGP.
- High levels of nitrogen and phosphorus are indicators of agricultural runoff and can lead to poor water quality
- This can also tell us other chemicals are getting inputted into the environment as well such as herbicides and pesticides.
- This study evaluates water quality now versus when they were sampled to get an idea of experience of agricultural runoff.

Methods:

- Nitrogen and phosphorus data was collected from the AQUARIUS open GIS data site from most recent readings, 2013, and 2014.
- Data was inputted into ArcGIS to be analyzed via buffer analysis.
- A buffer distance from the sampling sites of 2,640 feet which is determined to be under high risk according to the USDA.
- A buffer from the streams of a total distance of 2,640 (high risk according to the USDA) was done and percent of the lineages were calculated in the buffer zone.

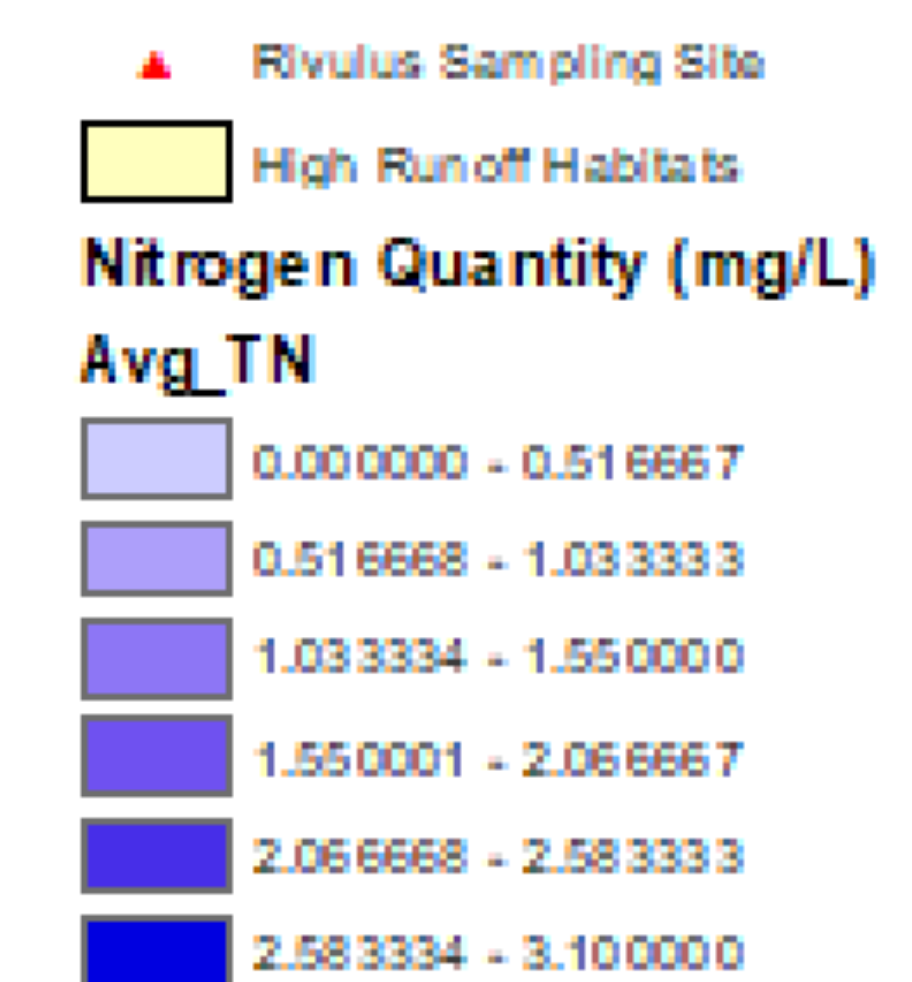
Results: Most recent data show the poorest water quality.



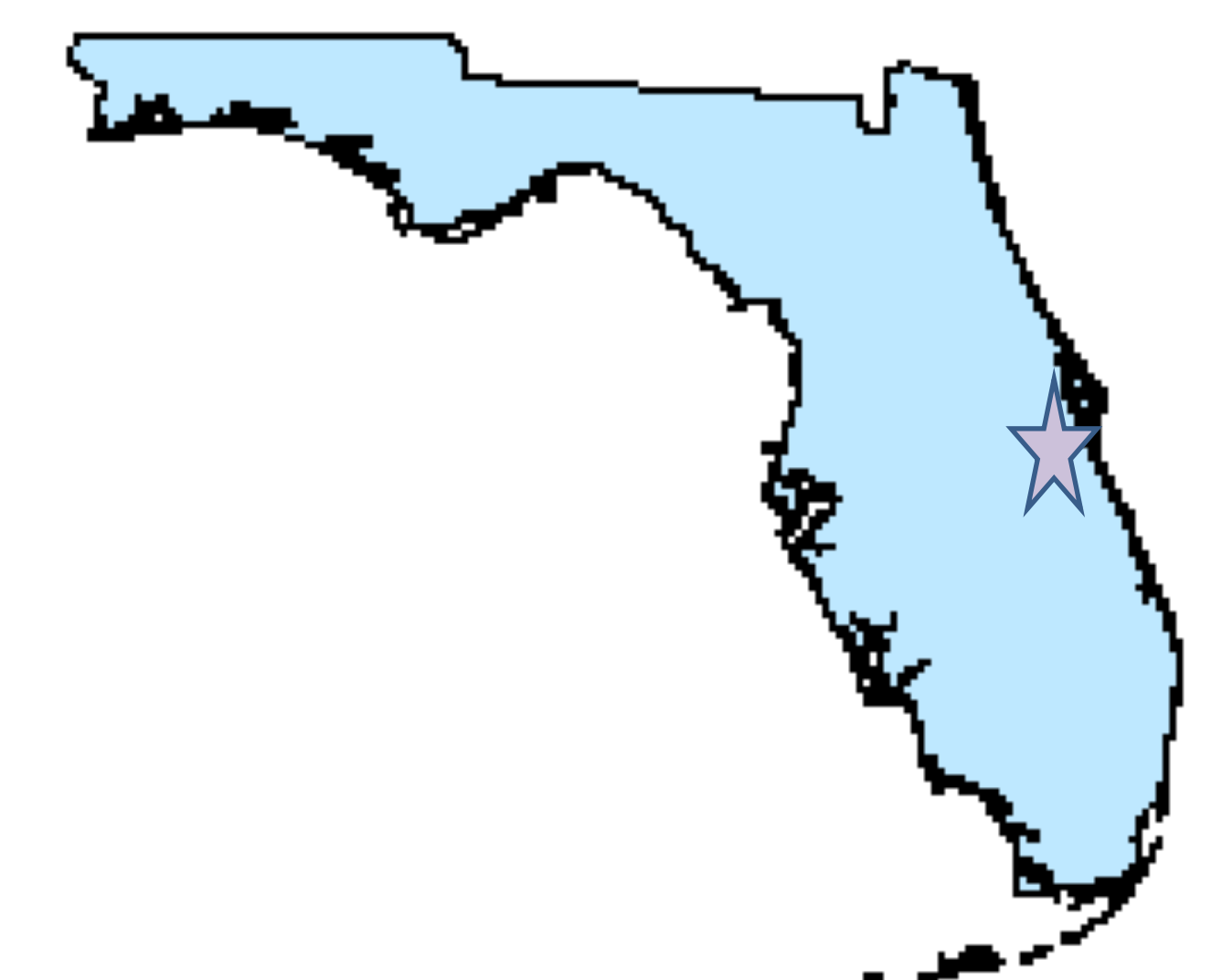
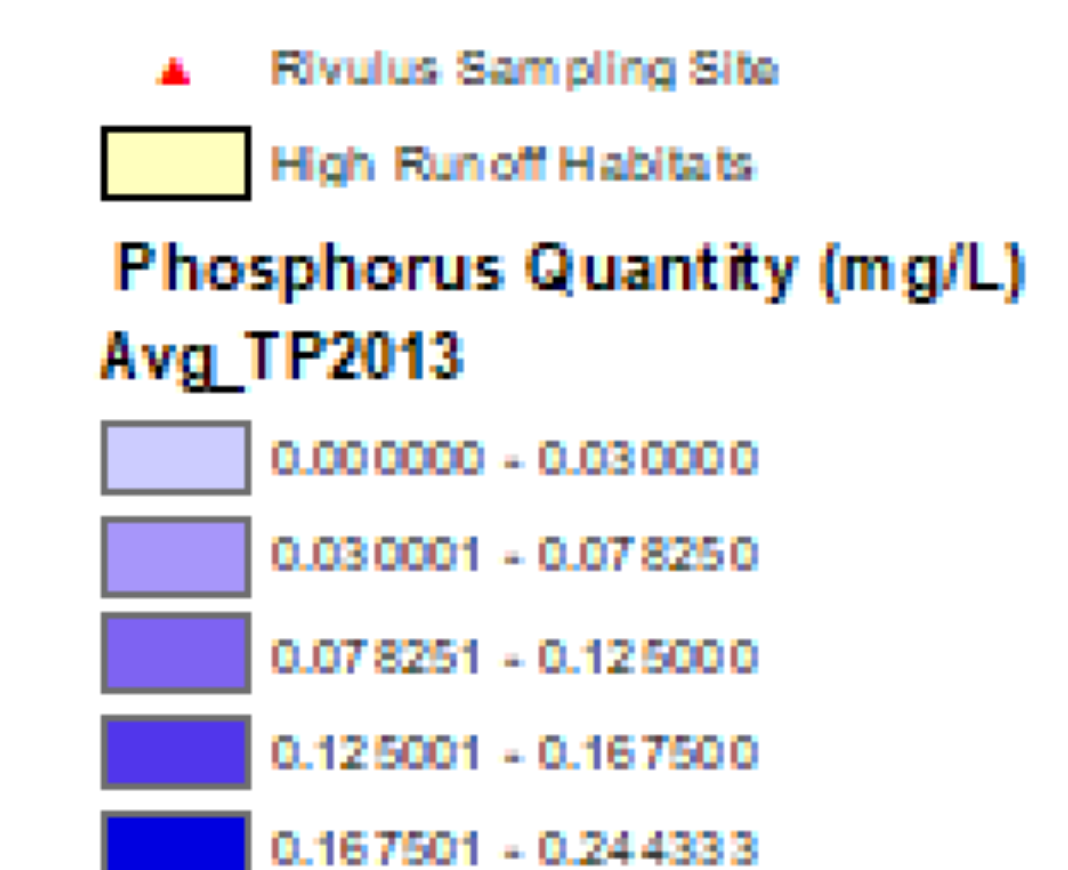
Discussion and Conclusions

- 2022 showed the largest percent area of high-risk thresholds (nitrogen > 1 mg/L), phosphorus > .06 mg/L).
- Sampling sites showed better water quality compared to the west coast of Volusia.
- Fish sampled from this site showed a moderate amount of runoff residue in the environment at the time of sampling (2013-2014).

Legend



Legend



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