

ASSESS VULNERABILITY OF OSTDS TO SLR AND STORM SURGE TO DEVELOP ADAPTATION PLANS

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Onsite Treatment and Disposal Systems (OSTDS) face multiple threats from climate change yet are rarely addressed in discussions of climate change impacts on structures or infrastructure. Like public infrastructure such as roads, buildings or public wastewater treatment facilities, OSTDS in coastal areas are at risk from high tide flooding, sea level rise, and other related impacts. High tide flooding can saturate drainfields causing temporary failure of effluent processing. Rising sea levels can permanently inundate drainfields and elevate groundwater, both saturating the vadose zone and leading to greater nitrogen release into ground and surface waters. Historically, OSTDS have been the predominant wastewater treatment system in our coastal communities, where a majority of our populations live, and where some of the most significant forms of climate change are being experienced today. Until now, very little work has been done to understand what risks OSTDS face from climate change. We present a method to identify and quantify the risks that OSTDS face from climate change related impacts in low lying coastal communities. We begin by using ArcNLET to gauge the current nitrate loadings of OSTDS in the study area. Next, a vulnerability assessment method was developed, customized to the specific community (St. Augustine, FL). This method identifies the impacts that are most relevant to that community, establishes a risk ranking for each impact, and weights them against each other. This results in estimates of current nitrate loading and a vulnerability score that quantifies the level of risk each septic system is facing. The results provide communities with critical information to understand where OSTDS are already impacting water quality and are at greater risk from climate change related impacts. This information is being used by the City of St. Augustine to guide the decision-making process for future opportunities for septic to sewer conversion projects.

PRESENTER BIO: Dr. Kyzar is a spatial analyst and project manager with experience in spatial statistics, nutrient modeling and vulnerability assessments. She works with a variety of stakeholders including local, regional, state and federal agencies. Analysis results inform local and regional policies and assist in reducing impacts to the aquatic environment..