# Environmental Geology Report: Groundwater and Saltwater Intrusion in the Floridan Aquifer

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## Introduction

This report explores saltwater intrusion in the Floridan Aquifer, one of the most productive groundwater systems in the United States. The intrusion of saltwater into freshwater aquifers has become a growing concern due to over-pumping and rising sea levels.

## Key Concepts

- Aquifer Depletion: Over-extraction of groundwater causes pressure imbalance, leading to saltwater migrating inland.  
- Saltwater Intrusion: Saltwater encroachment into freshwater zones reduces water quality and impacts drinking water supplies.  
- Hydrologic Balance: The delicate interaction between recharge rates, withdrawal, and hydraulic head is crucial in maintaining freshwater dominance.

## Data Analysis

Using topographic and hydrogeological maps from the USGS and class datasets, I identified:  
- Coastal zones with high susceptibility to saltwater intrusion.  
- Temporal changes in water quality measured through chloride concentration data.

## Conclusions

The Floridan Aquifer is at risk due to continued groundwater withdrawal exceeding recharge rates. If unmanaged, this could lead to irreversible saline contamination. Recommendations include:  
- Reducing groundwater pumping.  
- Using alternate water sources.  
- Installing monitoring wells in vulnerable areas.

## Reflection on Writing Skills

This report showcases my ability to:  
- Conduct and synthesize scientific research.  
- Present data using visual aids.  
- Write in a clear, academic tone while addressing a real-world environmental issue.