In the arid city of Cape Town there is much work being done to prevent dangerous water shortages and utilize groundwater as a reliable source of water. Projects to strengthen water resilience include work to diversify the water source and utilize groundwater. Much of the groundwater is contaminated by industry and may affect coastal ecosystems via groundwater transport. The purpose of the study was to see the environmental danger that urbanization can have on groundwater and coastal ecosystems. Coastal ecosystems can be degraded when toxins and nutrients affect the composition of water and can destroy fragile coastal habitat. To accomplish this I worked with the company Umvoto working as part of a water testing team to check wells around the Cape Town limits. I was researching a section of coast using nitrate testing strips to test for organics in the groundwater. I found that there was no direct correlation to groundwater affecting the surf zone, there was however an increase in background nitrate concentration and important dynamics at play in the region. Groundwater can be a major asset but can also interact directly with near-shore environments, this process can be applied to most coastal environments. Areas that rely on groundwater must understand its interactions with the environment and its effects on water security, climate change and equity.