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BACKGROUND

- The Conservation Leadership minor was created in partnership with the US Fish and Wildlife Service (USFWS)
- Students from the 2018-2019 Cohort collaborated to develop a comprehensive case study on water management issues in Puerto Rico (PR) using the MARI case study template
- Topography and climate in PR make efficient management of water resources vital to continued prosperity on the island

METHODS

- The case study method involved student researchers personally observing relevant systems, conducting interviews with stakeholders, and sourcing and analyzing peer review literature to create a set of recommended actions for managers
- Recommendations were formed from best available research and stakeholder needs

DECISION SPACE

- Mock stakeholder meetings were held to simulate collaborative decision making between these groups
- Goal statement: **“Meeting the water needs of the people of Puerto Rico while safeguarding the freshwater ecosystems”**

CHALLENGES

- Aging water infrastructure and severe storms have led to a leakage crisis; 60% of all water transferred was lost (Miller et al., 2009)
- Sedimentation has led to a loss of reservoir capacity (Hansen et al., 2018)
- Damming of waterways for freshwater storage has led to a 95% decrease in fish populations in the island interior (Murray et al., 2018)
- Contamination from domestic, agricultural, and industrial waste impacts freshwater systems

Meeting the water needs of the people of Puerto Rico while safeguarding freshwater ecosystems: A case study



FORESIGHTS

- In order to ensure water can be effectively managed into the future, researchers investigated the projected changes in rainfall, climate, and sea level on the island to determine how the water needs might change over time

RECOMMENDATIONS

Student researchers presented these findings to USFWS and made the following recommendations:

- **Infrastructure improvements:** create an island-wide leak reporting system, increase water management facility staff, move water management facilities inland, and explore alternate energy sources to improve storm resilience
- **Governance changes:** create a stakeholder committee to explore shared values and effectively allocate funds
- **Reduction of waste and pollution:** expand recycling initiatives, explore alternative waste disposal strategies, develop ecosystem water quality monitoring, and organize watershed clean-up teams to remove waste from waterways
- **Increase freshwater storage:** decentralized water storage in the form of individual and community cisterns, construct additional water catchments, increase wetland buffer zones, and create water management education programs for large scale water users

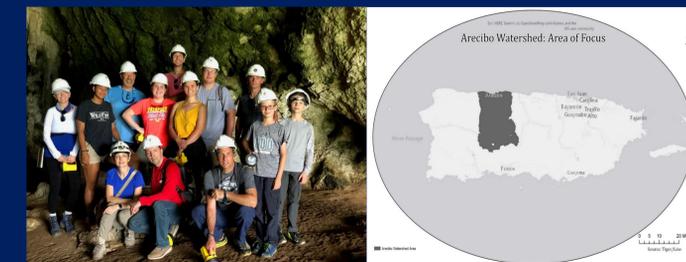


Figure 1. Map of the focus area, Rio Grande de Arecibo