Spatial and Temporal Variability in Urban Water Quality on a Tropical Island
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Introduction
- Rapid transit time from mountain to sea in small islands makes them particularly susceptible to coastal degradation from land use and urbanization
- Fringing mangrove lagoons and coastal reefs are at high risk from impact in tropical islands with high rainfall and runoff
- Tourist-based economies are especially vulnerable to economic losses from degraded water quality
- Focus here: How well does urban infrastructure protect water quality in San Juan, Puerto Rico?

Methods
Spatial Assessment:
- 30 sub-watersheds with a range of land use/land cover
- Variation in stream chemistry with sampling once a year for 7 years
- Model hydrologic network, and nitrogen loading or uptake down the drainage network
- Assess whether nitrogen loading varies with urban infrastructure

Temporal Assessment:
- Weekly samples taken over 6 years
- Nutrients, organic matter, major anions and cations
- Relationship with discharge as primary driver of concentration variation

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Literature cited
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