

Geographies of dirty water

Landscape-scale inequities around coastal amenities
in Rhode Island

Julia Twichell¹, Kate Mulvaney², Nathaniel Merrill²,
Justin Bousquin³

¹ Narragansett Bay Estuary Program, Providence, RI

² US EPA Office of Research and Development, CEMM,
Atlantic Coastal Environmental Sciences Division, Narragansett, RI

³ US EPA Office of Research and Development, CEMM,
Gulf Coastal Environmental Sciences Division, Gulf Breeze, FL

Research question

Do folks of different demographic groups have **equitable opportunities to access and recreate on the coast?**

Environmental Justice Research Areas

the fair distribution of environmental burdens and benefits

Disamenities

Pollution
Contaminated sites
Environmental
hazards

Amenities

Swimming pools
Parks
Green space
Coastal Access

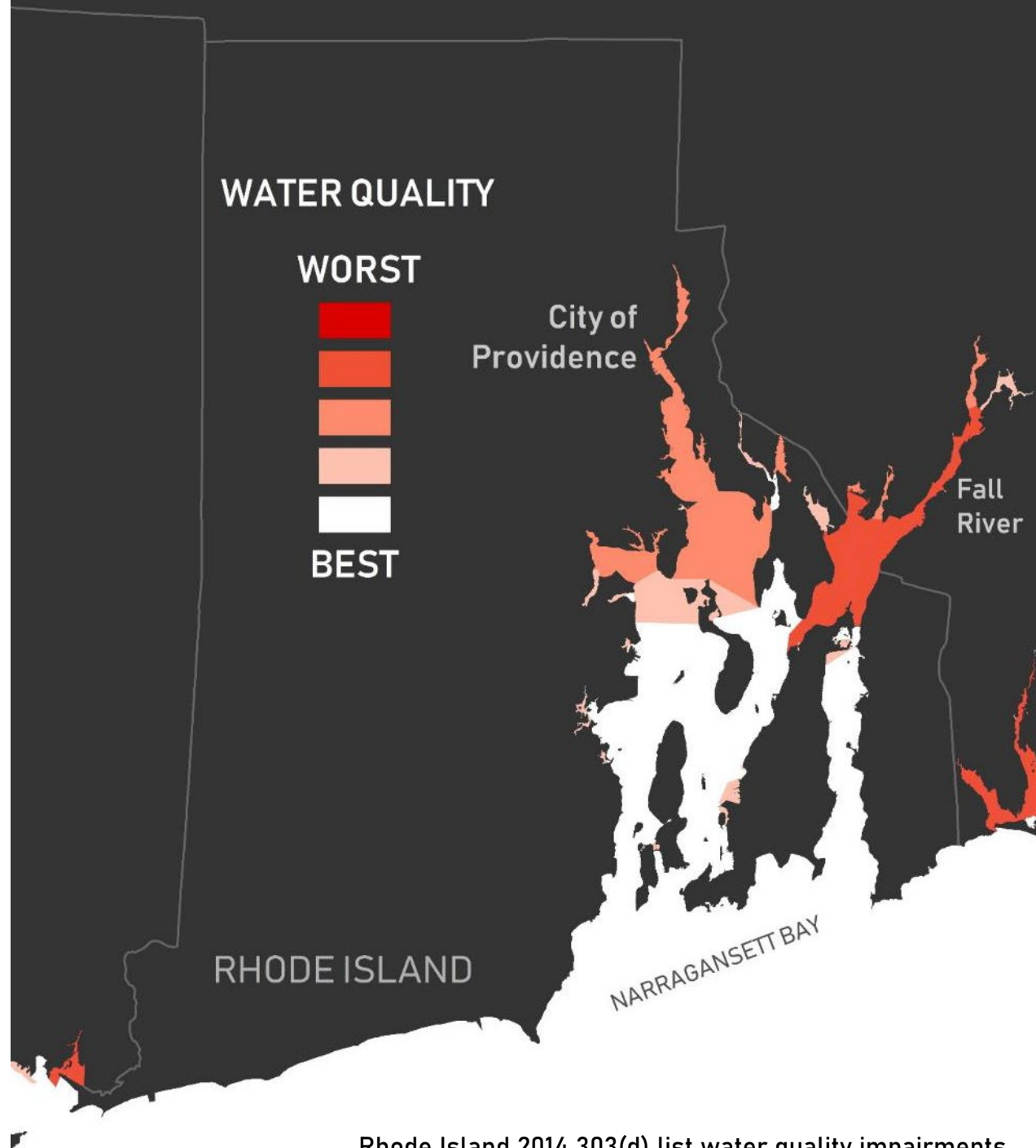


What impacts access and recreation on the coast?

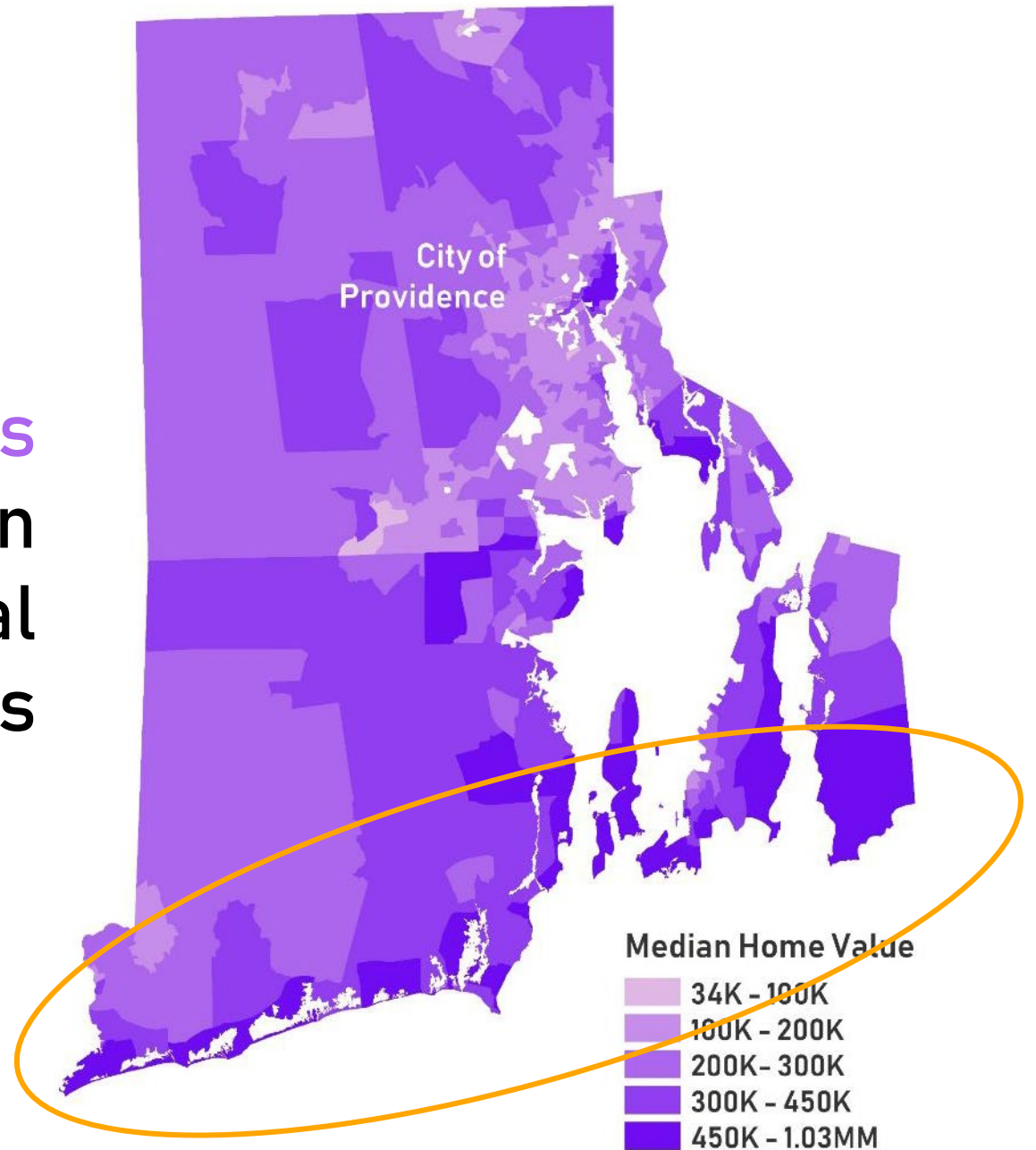
- Site type
- Site quality
- Accessibility
 - Time, cost, transportation, weather
 - Those living closer are more likely to go
- **Who you are**

Cox et al. 2006, Haeffner et al. 2017, Ashbullby et al. 2013, Montgomery et al. 2015

Coastal water quality in Rhode Island



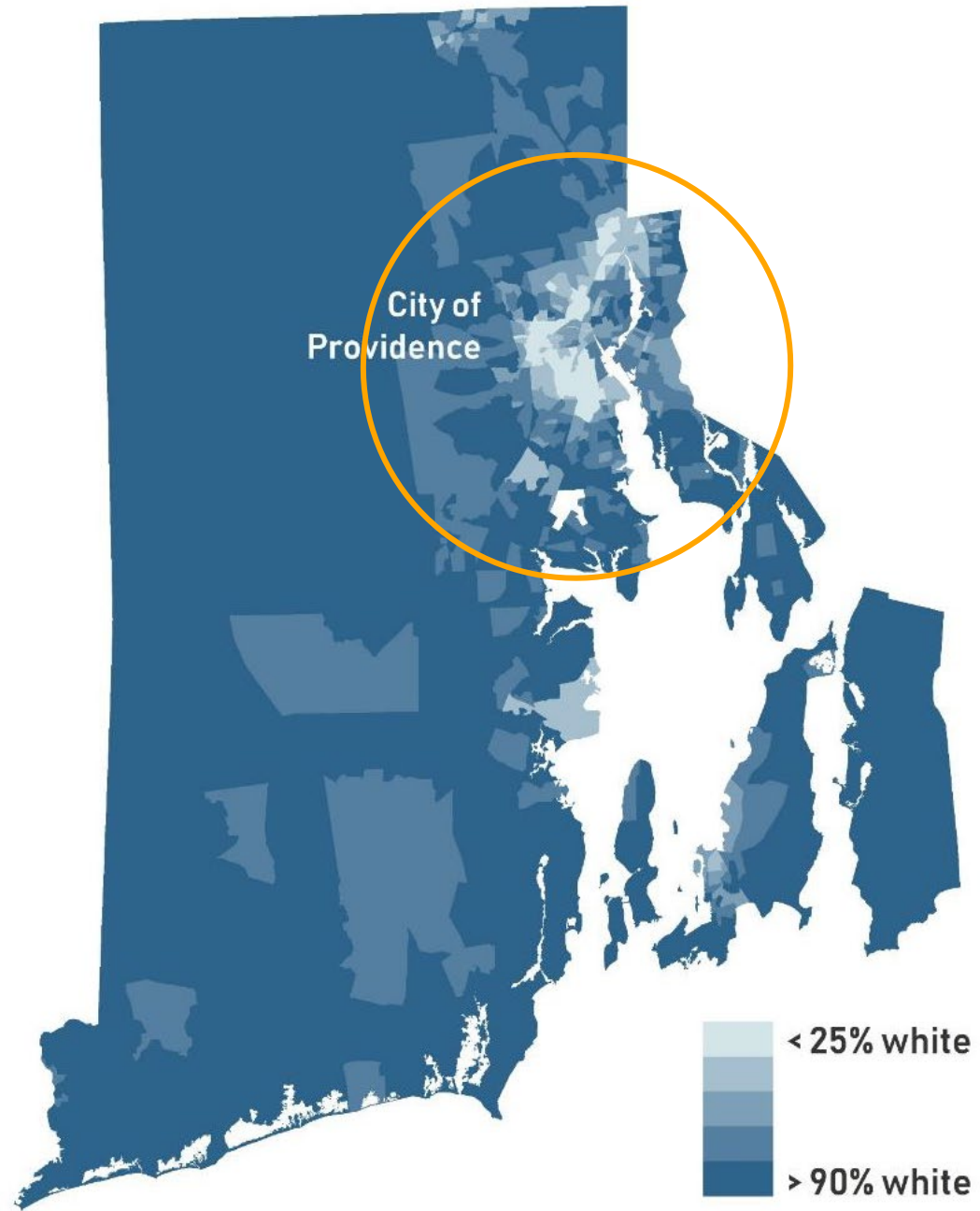
Property values
are higher in
prime coastal
areas



Rhode Island's
population is
81% white

(non-Hispanic/Latinx, white alone)

Most **people
of color** live
in urbanized
areas in RI

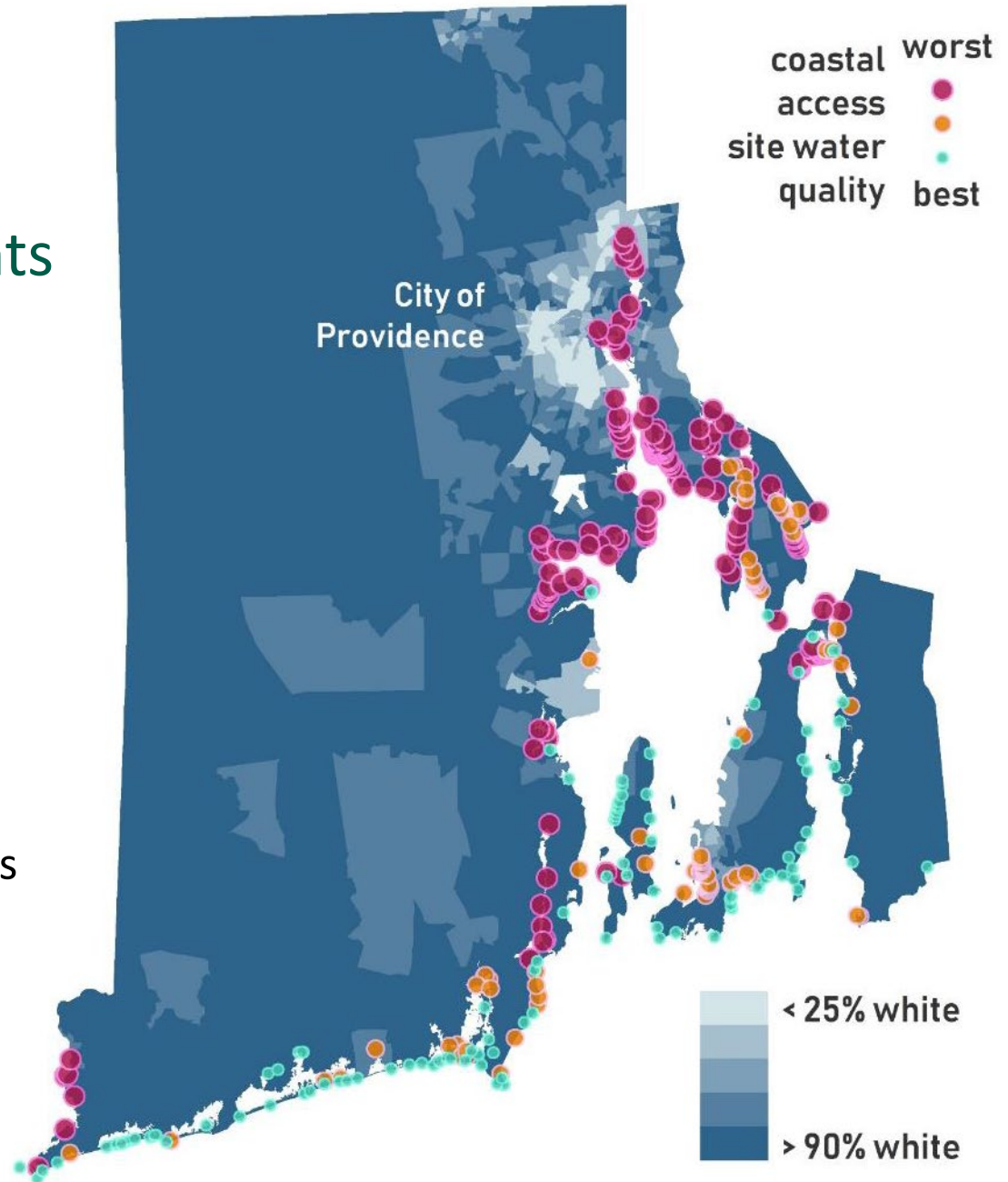


400 public access points

- Paths to shore
- Boat ramps
- Fishing sites
- Scenic viewpoints
- Swimming areas
- Public parks
- Conservation areas

Water quality index:

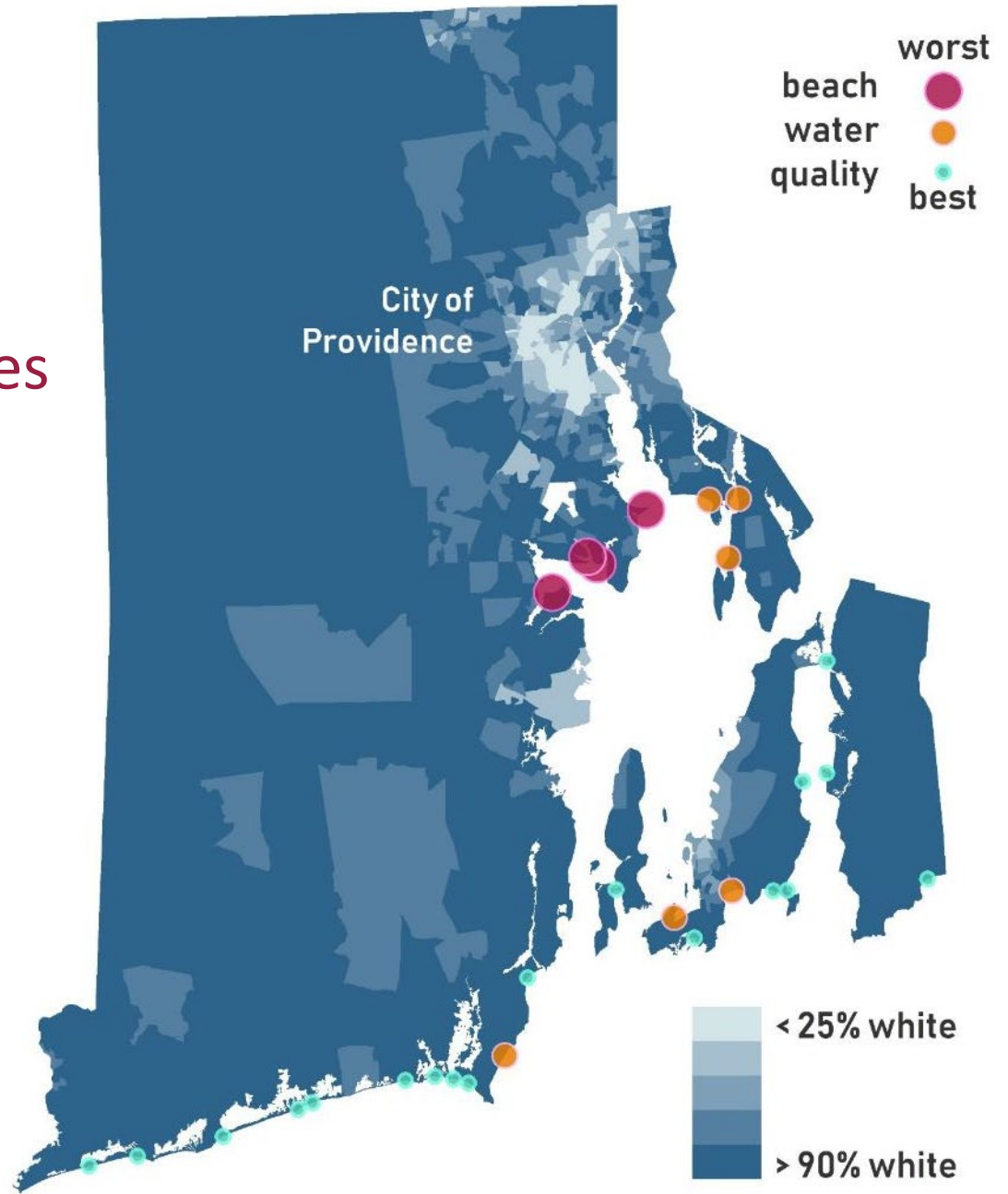
- State water body assessments
- State shellfish area classifications



30 state & town beaches

Water quality index:

- State beach advisories
- State water body assessments
- State shellfish area classifications



Equity Mapping Methods

1. Census blockgroup-level travel distance metrics
 - Origin-destination cost matrix analysis
 - Mean distance to the NEAREST 10 public access points / beach
 - Mean distance to the CLEANEST 10 public access points / beach

Equity Mapping Methods

1. Census blockgroup-level travel distance metrics
 - Origin-destination cost matrix analysis
 - Mean distance to the NEAREST 10 beaches/public access points
 - Mean distance to the CLEANEST beach/10 public access points
2. Multiple regression
 - Race or ethnicity
 - Income, home value, unemployment
 - Seasonal housing
 - Vehicle
 - Urbanized areas
 - Population density
 - County

EFFECT ON
& ROUND-TRIP COSTS...

