



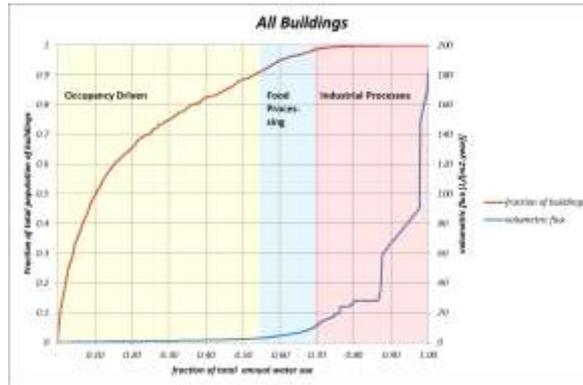
## BEES water objective



- ▶ **Increase understanding of water use in non-residential buildings**
  - Heterogeneous group
  - Accommodates businesses
  
- ▶ **BEES**
  - Only commercial buildings
  - No industrial activities
  - Emphasis on office and retail use
  
- ▶ **Water study went beyond BEES sample framework, but only for Auckland at a property level**



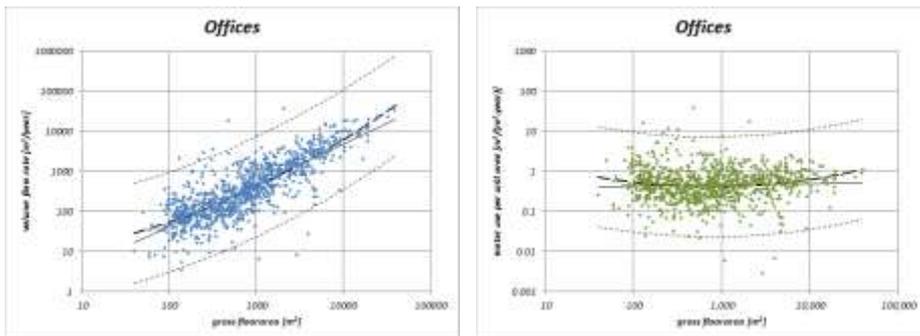
# Water demand structure



- ▶ 54% of demand from 92% of buildings use less than 3,000 L/(m<sup>2</sup> .year)
- ▶ Industrial process threshold set at 10,000 L/(m<sup>2</sup> .year)



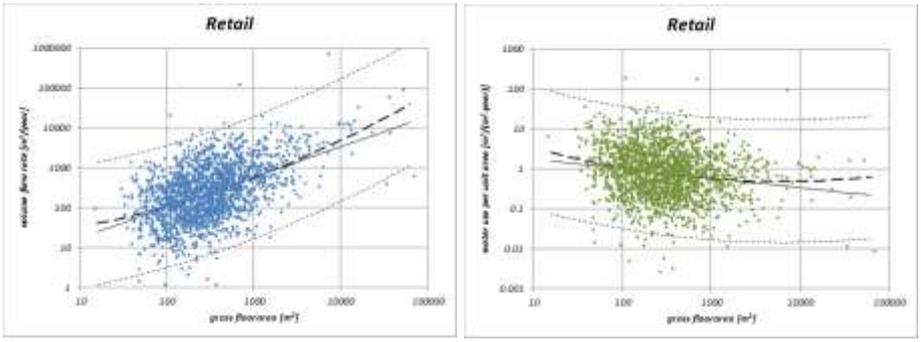
# Offices



- ▶ Water use relationship with floor area
- ▶ Average annual water use is 540 L/(m<sup>2</sup>.yr)



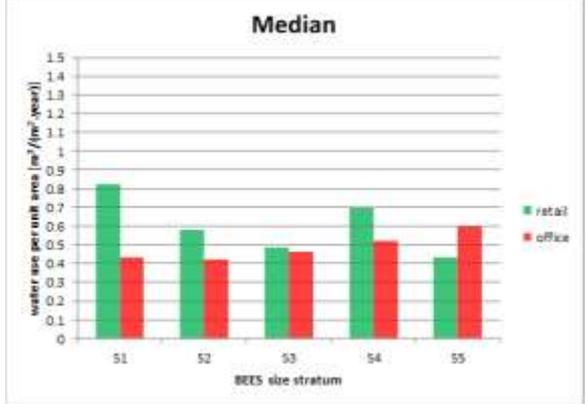
# Retail

- ▶ Median water usage in retail decreases with building size
- ▶ Retail has a wide range in water use
- ▶ Average annual water use is 1,200 L/(m<sup>2</sup>.yr)



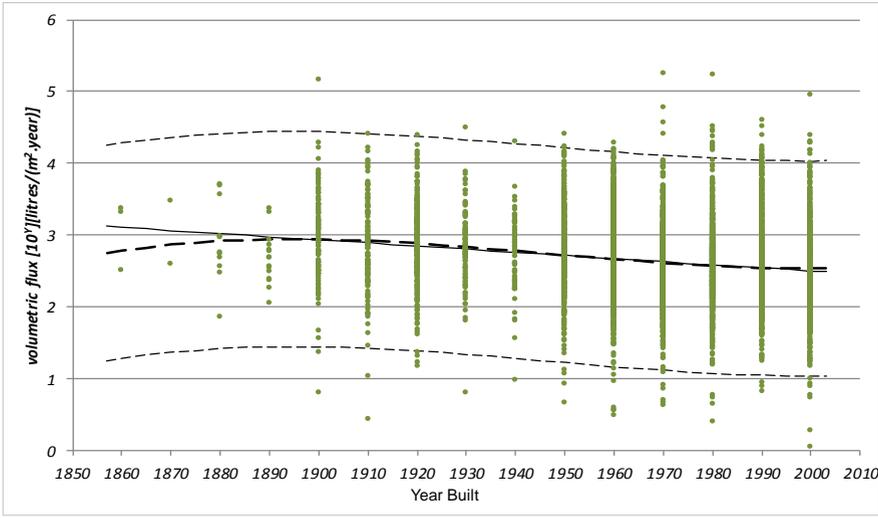
# Office and Retail

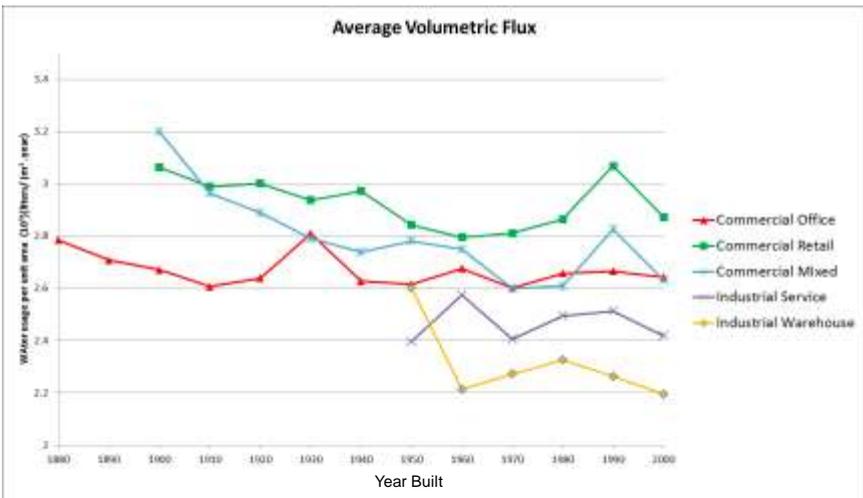
- ▶ Small to medium retail uses more water than offices
- ▶ Larger offices use more than retail



# Building Age



# Building Age



## Conclusion



- ▶ **Water usage varies over tremendous range**
  - Building size explains some of the variance, but creates questions
  - Occupancy and presence of food processing drives water use
  - Age does not seem important, new buildings are not better
  
- ▶ **Reference base line for Auckland**
  - Makes benchmarking possible
  - Important for those aiming to do better

