



# Water Finance 101

Glenn Barnes

Environmental Finance Center

The University of North Carolina at Chapel Hill

919-962-2789

[glennbarnes@sog.unc.edu](mailto:glennbarnes@sog.unc.edu)



# Session Objectives

- Learn how to think about your water system as a financial entity
- Understand some basic financial facts about water systems across the country



# Let's Start With the Basics

- What does your water system do?



# Water Systems Serve Multiple Purposes

## Sometimes Those Purposes Conflict

- 1) System serves an important **environmental and health purpose** -- protecting community's water resources and supplying community with highest quality drinking water.



Dr. John L. Leal



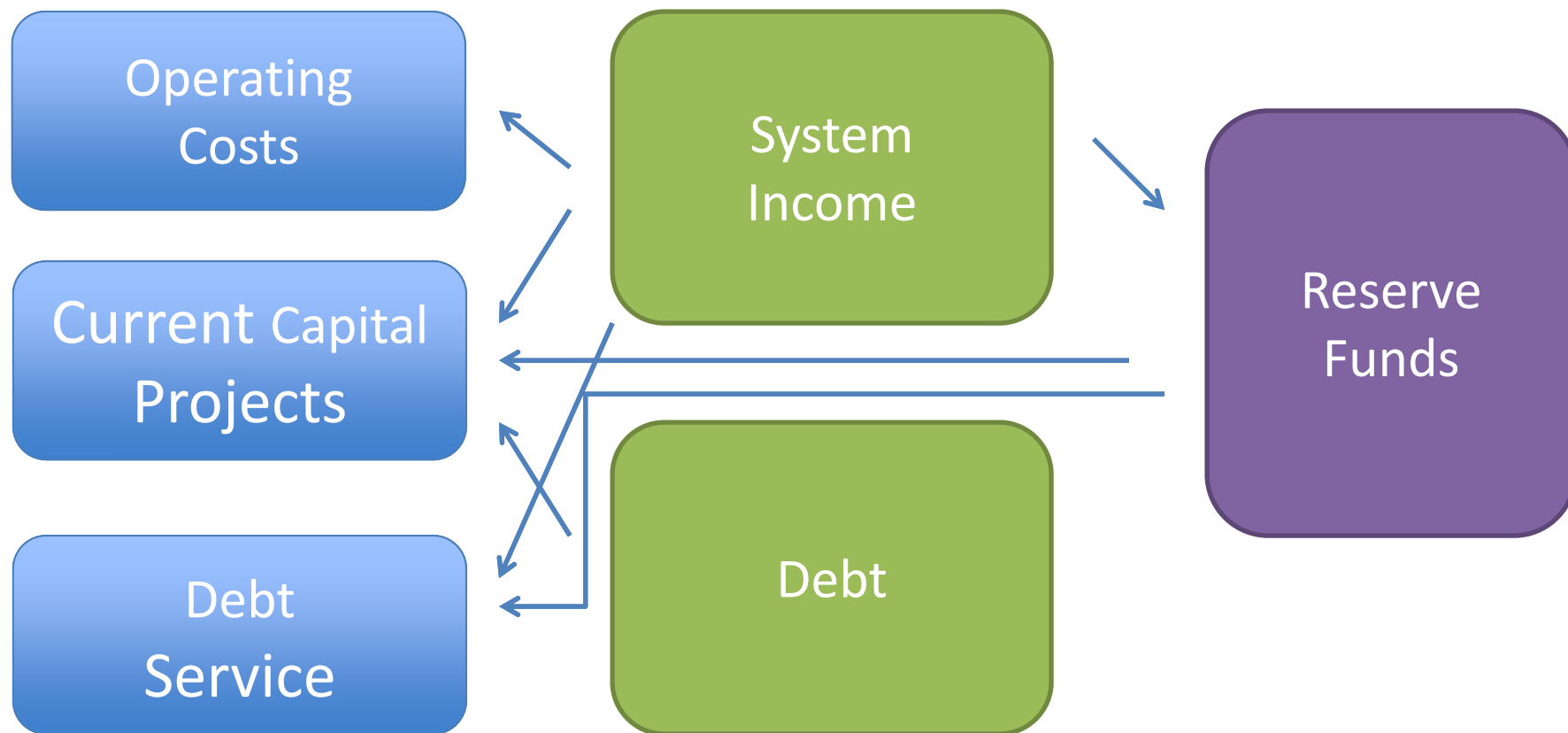
# Water Systems Serve Multiple Purposes

## Sometimes Those Purposes Conflict

- 1) System serves an important **environmental and health purpose** -- protecting community's water resources and supplying community with highest quality drinking water.
- 2) System serves an important **public service** – providing community with basic services that everyone in the community can afford.
- 3) System serves as a well managed **public enterprise** – putting into practice forward-thinking sustainable business practices.



# Water System Finance Diagram





# Three Types of Costs

- **Operating Costs**—what you need to run the system day in and day out
- **Capital Costs**—rehabilitation and replacement of existing infrastructure and new infrastructure
- **Debt Service**—what you owe on loans and bonds



# Two Types of Revenues

- **System Income**—Money from rates, tap fees, impact fees, grants, other sources
  - Note: To be a true enterprise fund, not taxes!
- **Debt**—Money from bonds and loans





# Many Types of Reserve Funds

- Capital Reserve Fund—Infrastructure rehabilitation and replacement
- Repair Fund—Known, ongoing maintenance issues
- Emergency Fund—Unknown, unanticipated maintenance issues
- Rainy Day Fund—Unexpected revenue shortfalls



# How Much Do You Need In Your Reserves?

- It depends
- Enough to pay for your most expensive piece of equipment?
- Enough to cover your costs if you had no revenue for two months?
- Enough to cover the projects in your capital improvement plan?

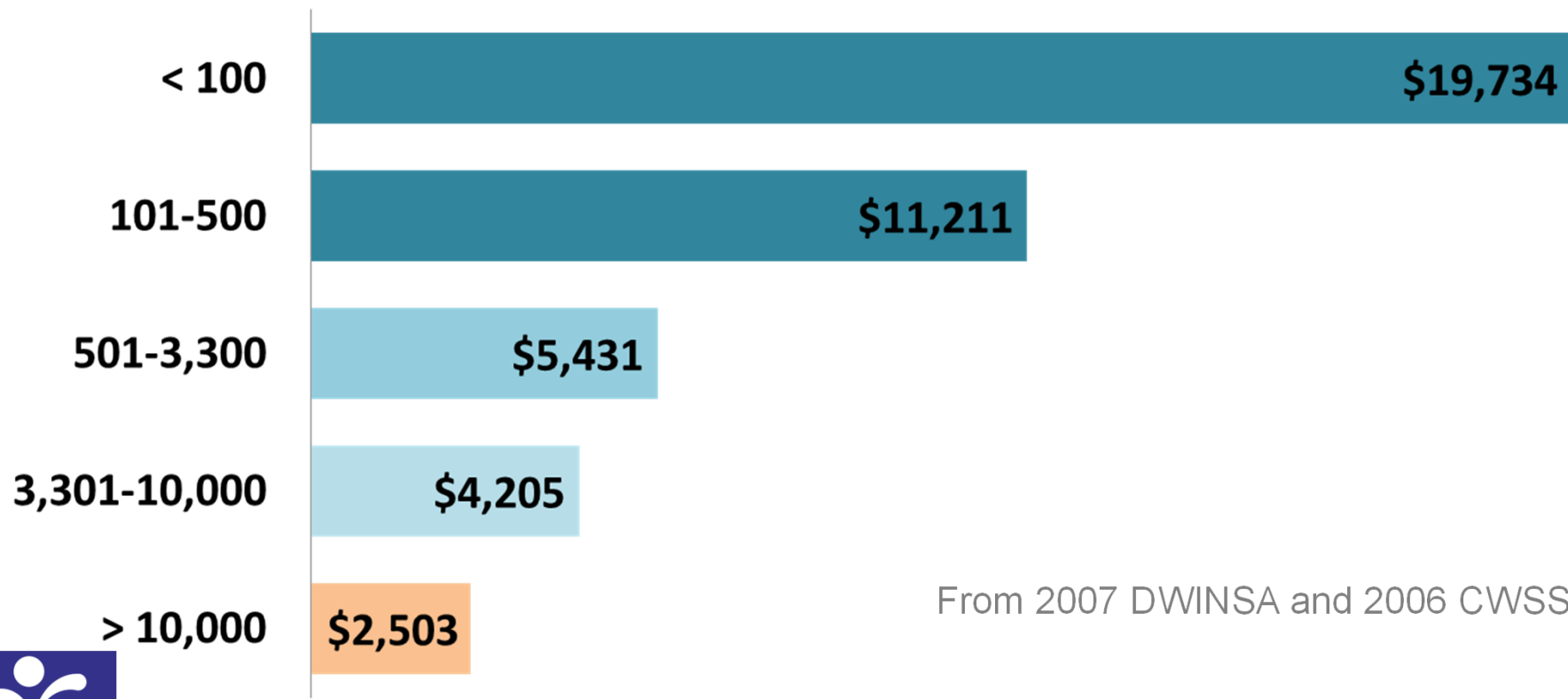


# Why does system size matter?

## What's the issue with small systems?



# The Infrastructure Needs Per Residential Connection are Much Greater for Small Systems

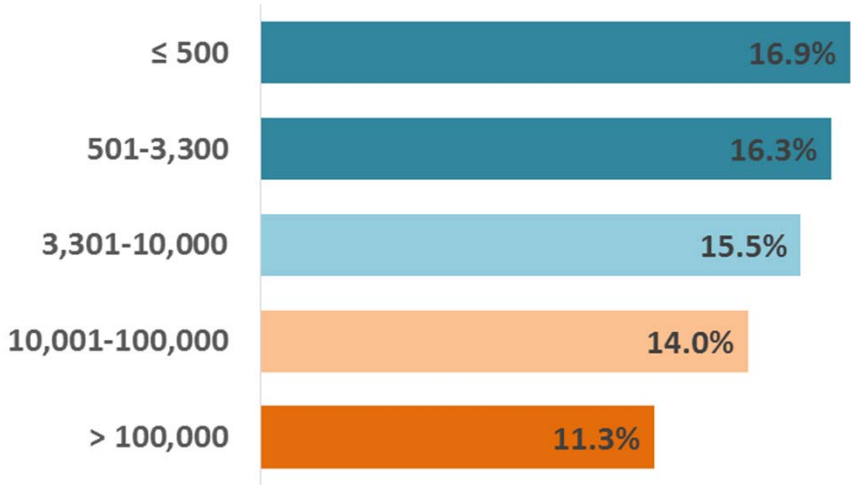


From 2007 DWINSA and 2006 CWSS

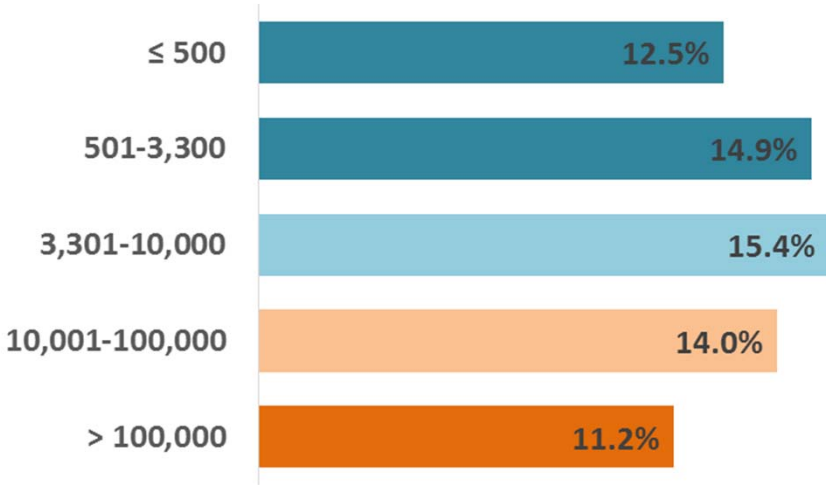


# And Small Systems have higher numbers of annual health violations

Community Water Systems



All Systems





# The most common violations for Small Systems are for Monitoring & Reporting

**Monitoring & Reporting**

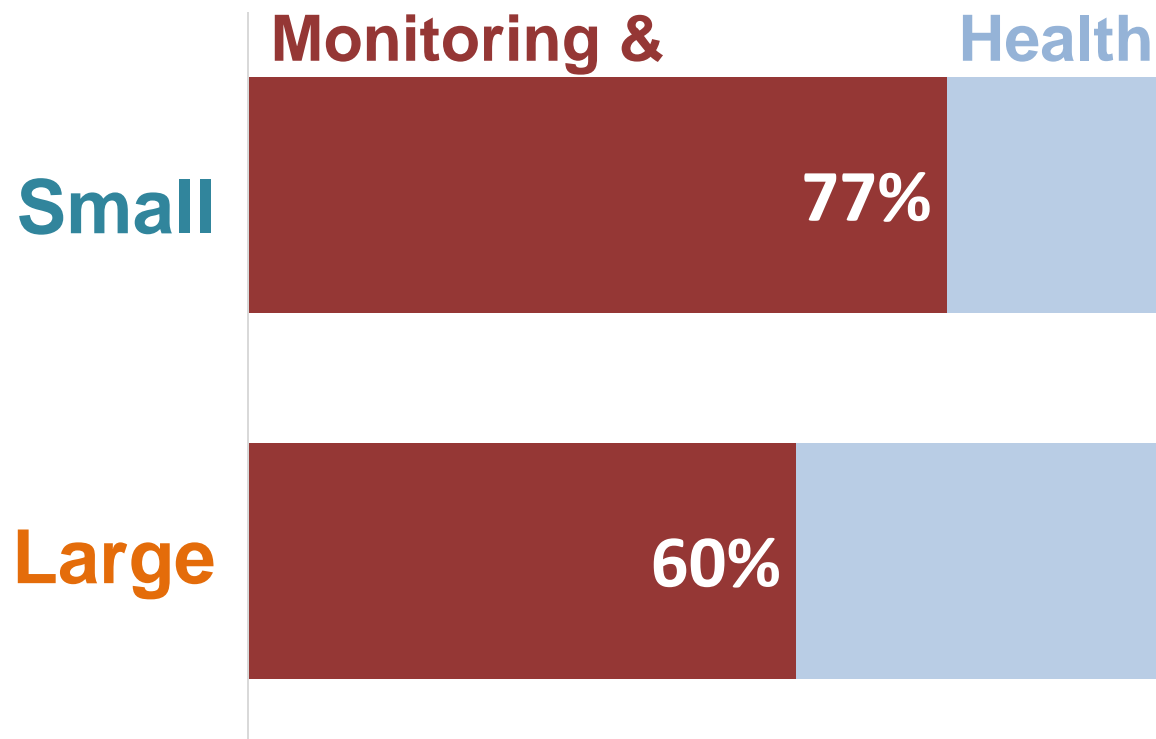
9.4%

**Health**

4.6%



# Monitoring & Reporting violations make up a larger share of total violations





## In Other Words...

- Water systems require a large amount of very expensive infrastructure and skilled staff
- And that infrastructure, skilled staff, and other fixed costs don't go away when customers use less water individually or collectively