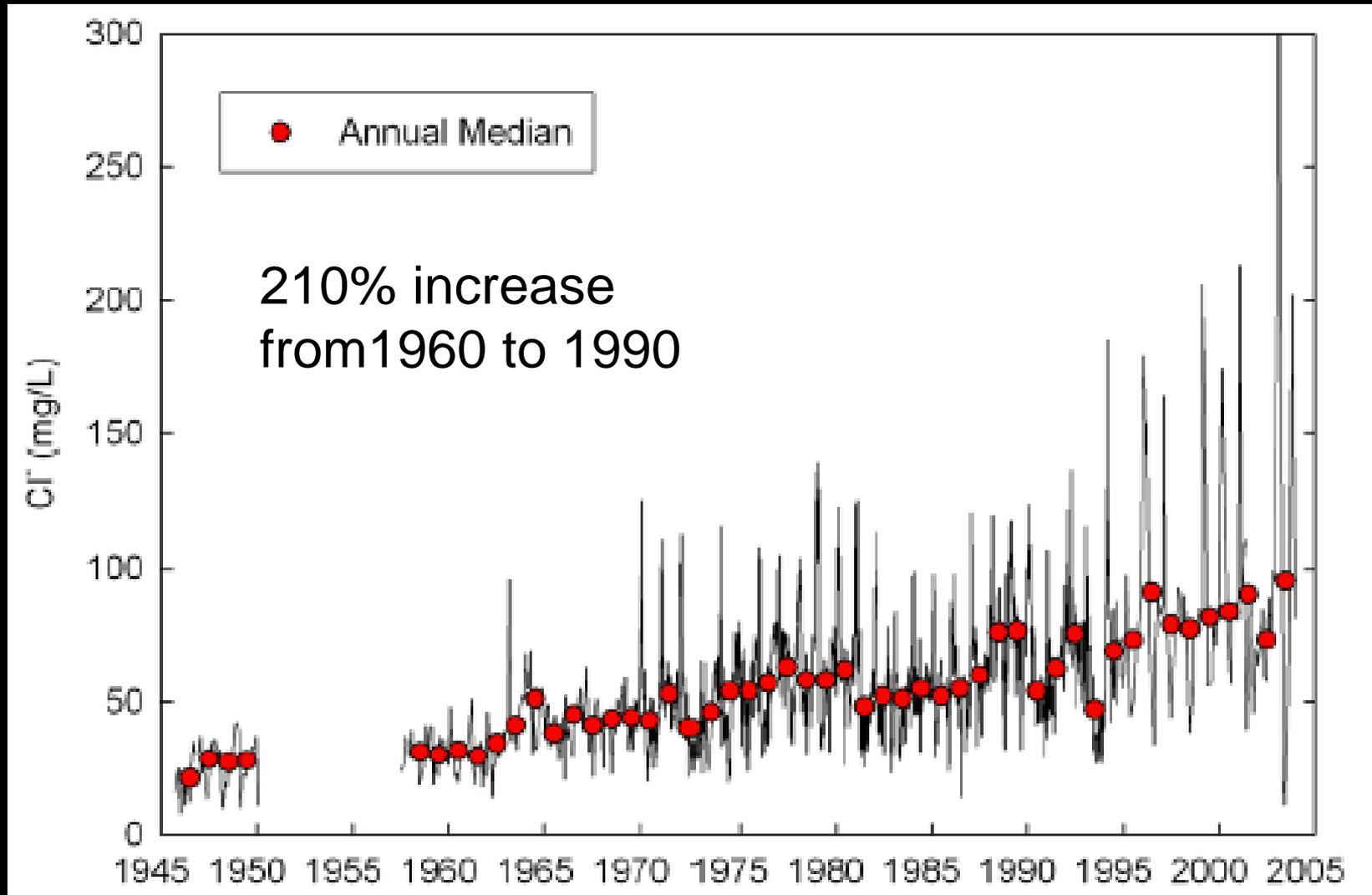




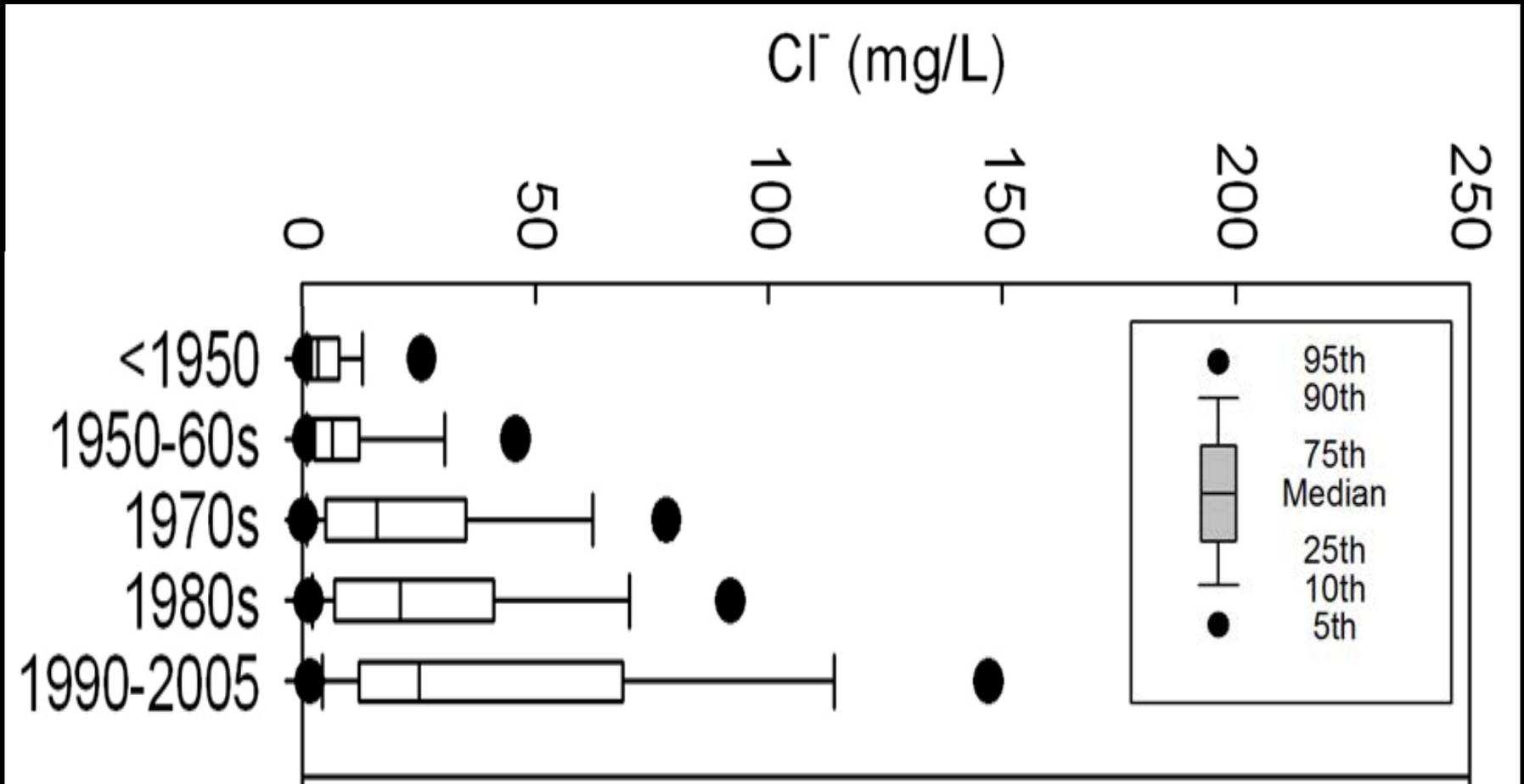
# An Ecological Solution for Reducing Chloride

Prepared by  
Wetlands Research, Inc.

# Annual median chloride concentrations in the Illinois River at Peoria



# Shallow aquifer chloride concentrations McHenry County 1950-2005



# Chloride and Sodium Sources



# So what???

- **Damage to infrastructure; roads, bridges, buildings, automobiles**
- **Drinking water**
- **Impact to aquatic food webs**
- **Long term salinization of our freshwater lakes**



Water flea (*Daphnia magna*)

# Dry mass of Chloride measured in three wetland plant species

December 2016	Chloride (mg/kg dry)	% Chloride by weight
Species	Above ground biomass (dried)	
chairmaker's rush	31,400	3.14
common reed	2,150	0.22
cattail	9,200	0.92

Analysis conducted by North Shore Sanitary District's laboratory

# Chairmaker's Rush: a keystone of ecological management

**Plant:** erect, perennial, to 5' tall, semi-aquatic, emergent sedge; stems triangular; firm rhizomes, native, non-invasive

**Habitat:** wet; marshes, shores in water 2'-3' deep



# Hybrid and Narrowleaf Cattail (*Typha x glauca*, *Typha angustifolia*)

**Plant:** erect,  
perennial, emergent  
semi-aquatic, 3'-9'  
tall, restricted,  
invasive

**Habitat:** sun; moist  
to wet; ditches,  
marshes, alkaline  
water; in muddy soil



# Common Reed (*Phragmites australis*)

**Plant:** erect,  
perennial, 3 1/5 - 16'  
tall, semi-aquatic,  
emergent grass,  
dense stands;  
restricted, invasive

**Habitat:** shores,  
disturbed areas,  
water to 40" deep; in  
sediment soil



# Let's discuss an ecological solution:

- 1. Research and pilot projects**
- 2. Public or private lands?**
- 3. Cost and Income and cost savings**
- 4. Construction**
- 5. Operation and management**
- 6. Energy savings**
- 7. Monitoring and reporting**



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