

Water Quality of the South Platte Basin



An Overview

Perspectives

*or how do you sum up water quality for
a 24,000 mi² Basin?*

- Clean Water Act
 - 305(b) and
 - 303(d)
- Water Quality of the South Platte River Basin, Colorado, Nebraska, and Wyoming, 1992-95 (USGS National Water-Quality Assessment)

In General, We Can Say . . .

It depends on

- Where you look
 - What impacts/issues?
 - To what degree?
- What questions are you trying to answer?



CWA Perspective: A River of Many Uses...and Criteria to Meet Them

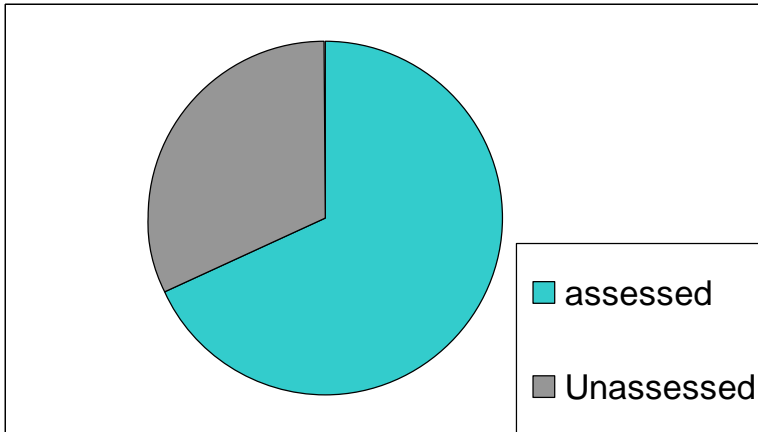


Photos author's or courtesy USGS Cir. 1167 or USEPA.

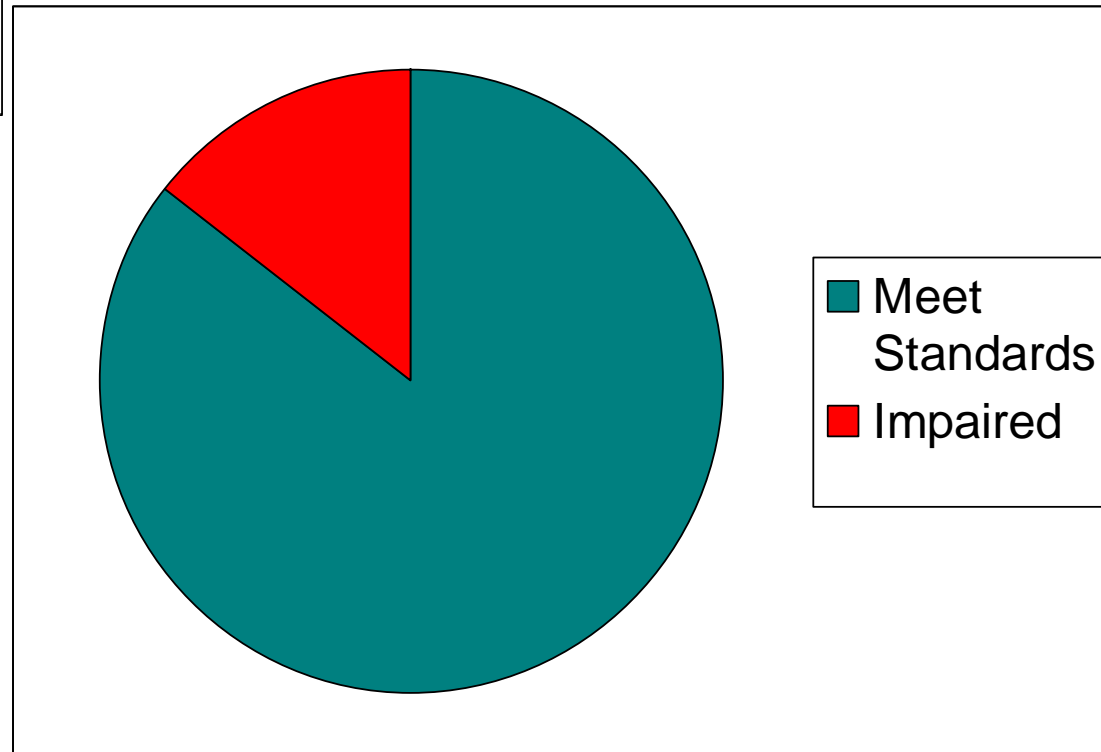
Statewide Water Quality

2008 Integrated Report

Assessed River and Stream Miles



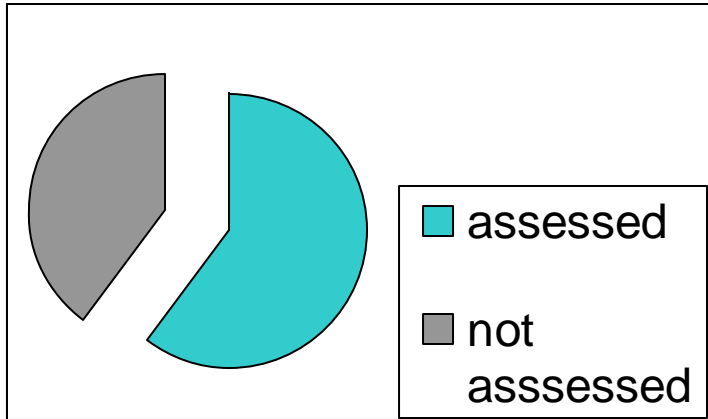
Impairment Status of Assessed River and Stream Miles



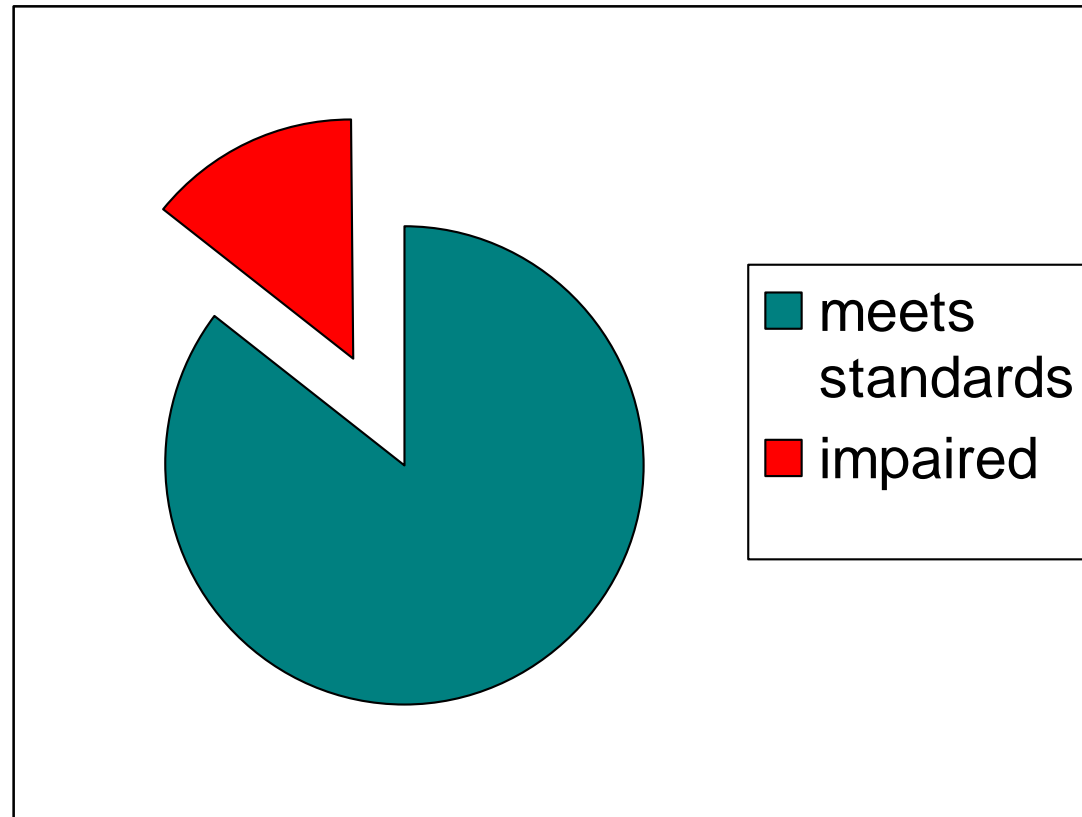
South Platte Basin Water Quality

2008 Integrated Report

Assessment status by 8-digit HUC



Impairment Status of Rivers and Streams by River Miles

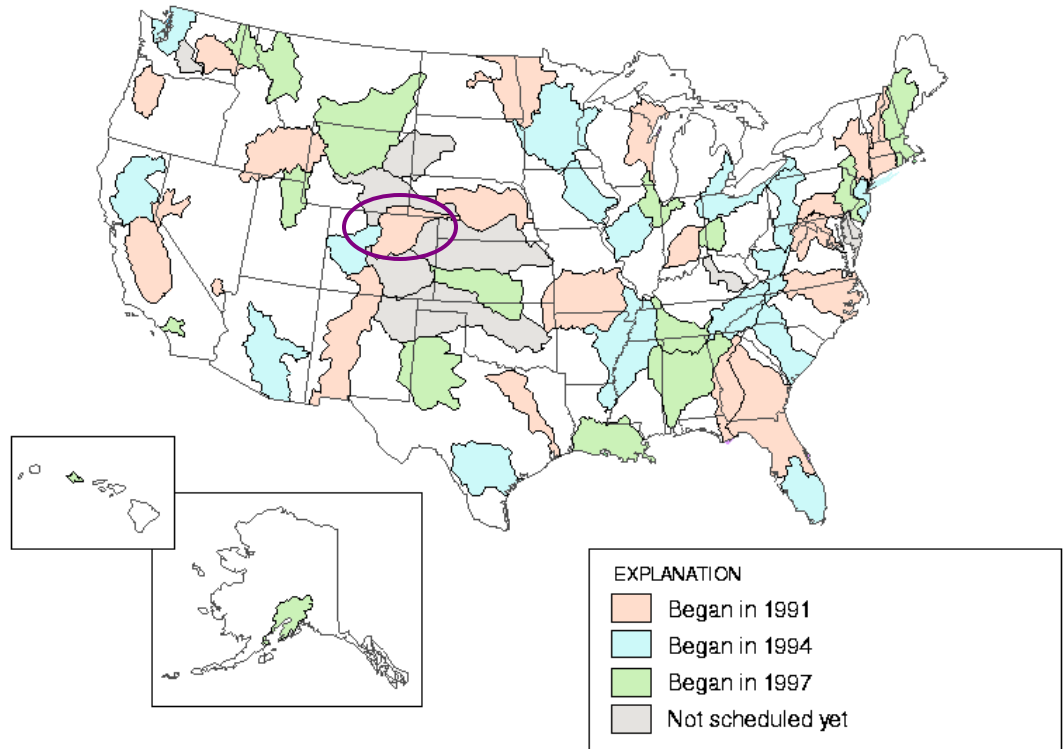


Colorado Causes of Impairment for Reporting Year 2008

Cause of Impairment Group	Size of Assessed Waters with Listed Causes of Impairment	
	Rivers and Streams (Miles)	Lakes, Reservoirs and Ponds (Acres)
Algal Growth		916.2
Ammonia	67.4	530.5
Cause Unknown	70.5	
Mercury		15081.8
Metals (other than Mercury)	8643.8	20650.1
Nutrients	11.2	
Organic Enrichment/Oxygen Depletion	87.8	9138.8
Pathogens	2350	
pH/Acidity/Caustic Conditions	259.1	6150.5
Radiation	80.5	
Salinity/Total Dissolved Solids/Chlorides/Sulfates	22.4	
Sediment	117.9	
Toxic Organics		78.4

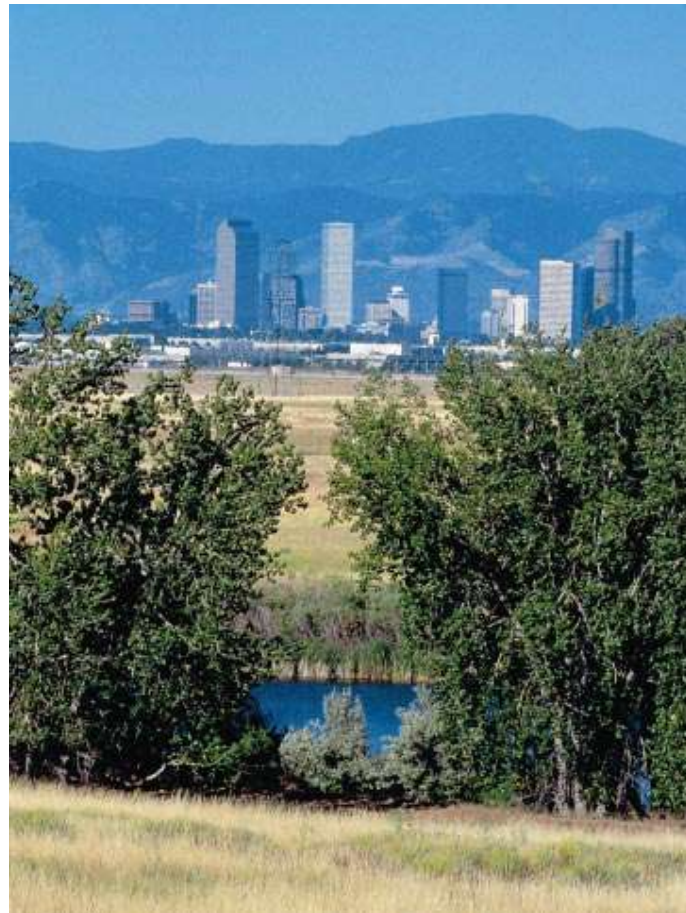
NAWQA Perspective

- 50+ basins and aquifers
- water-quality problems,
- how these problems are changing with time,
- effects of human actions and natural factors on water quality conditions.



Water Quality of the South Platte River Basin, Colorado, Nebraska, and Wyoming, 1992-95

- USGS Circular 1167, published 1998





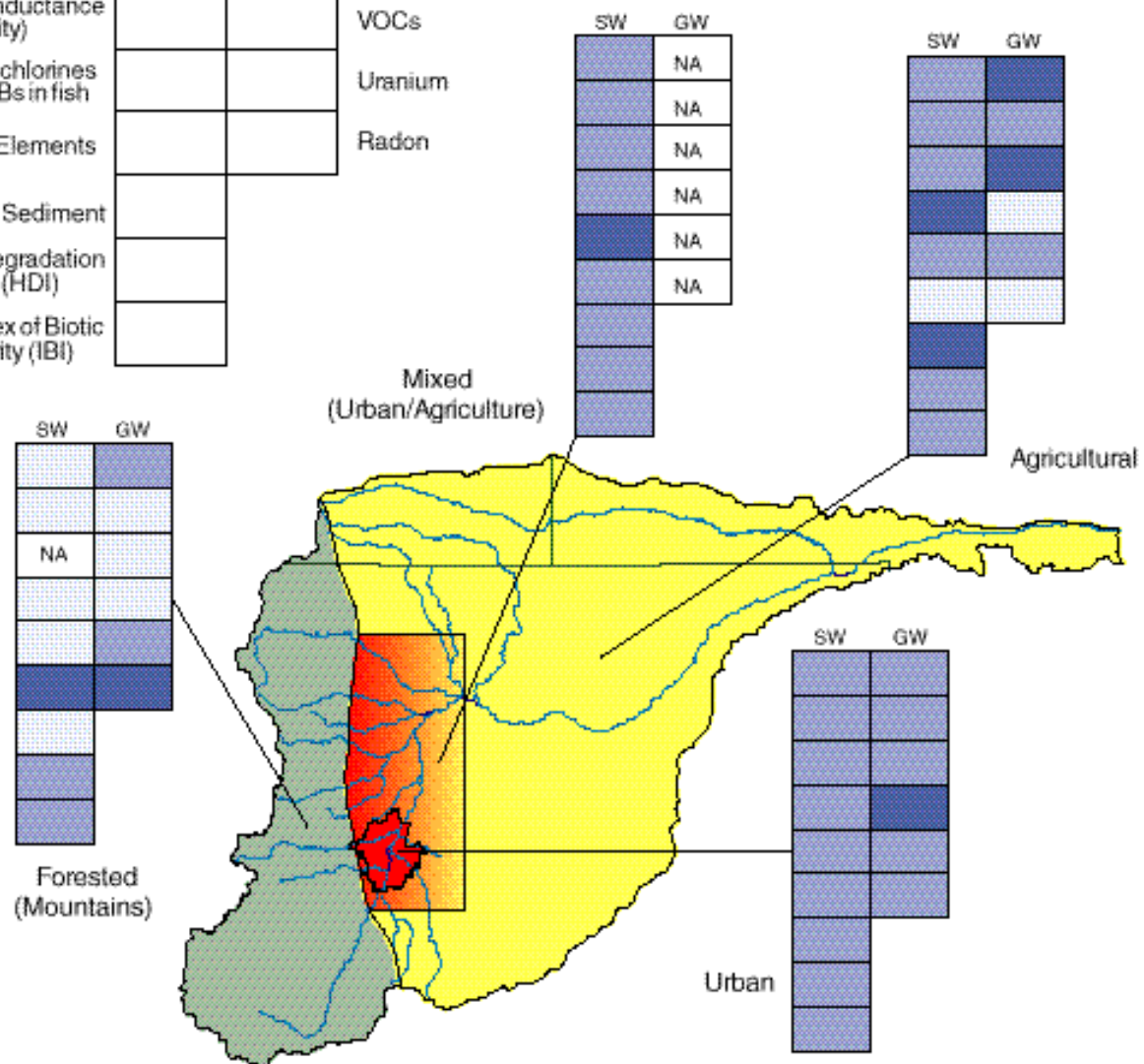
NAWQA Questions for the South Platte Basin

- How has water development affected water quality in the South Platte River Basin?
- Does land use contribute to contaminant inputs and affect habitat characteristics and biological communities in streams?
 - Have mining and residential development in the mountains affected water quality?
 - Does urban land use affect water quality?
 - Have agricultural chemicals affected water quality?
- How do discharges from permitted municipal wastewater treatment plants affect nutrient levels in streams?

EXPLANATION

	Surface Water	Ground Water	
Total Nitrogen			Nitrate
Total Phosphorus			Pesticides
Pesticides			Specific Conductance (salinity)
Specific Conductance (salinity)			VOCs
Organochlorines and PCBs in fish			Uranium
Trace Elements			Radon
Suspended Sediment			
Habitat Degradation Index (HDI)			
Fish Index of Biotic Integrity (IBI)			

	Significantly affected		Minimally affected
	Moderately affected		Not applicable



So, Based on both perspectives, what can we say?

- For much of the basin, water quality currently supports designated uses.
- Human activity impacts water quality in the South Platte Basin – both surface water and groundwater.
- Issues vary with both geologic and cultural settings.
- More human activity generally correlates to more impacts.

