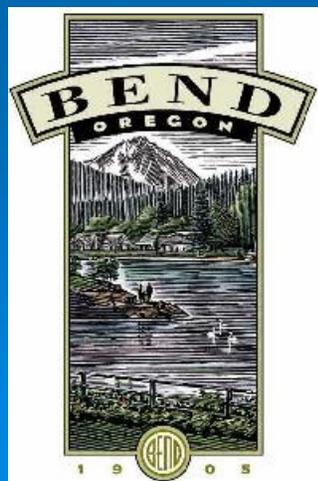


# From Crisis to Collaboration: Bend and the Deschutes Basin

AWWA – PNWS

Water Resource Committee

Securing Water Supplies



Patrick Griffiths

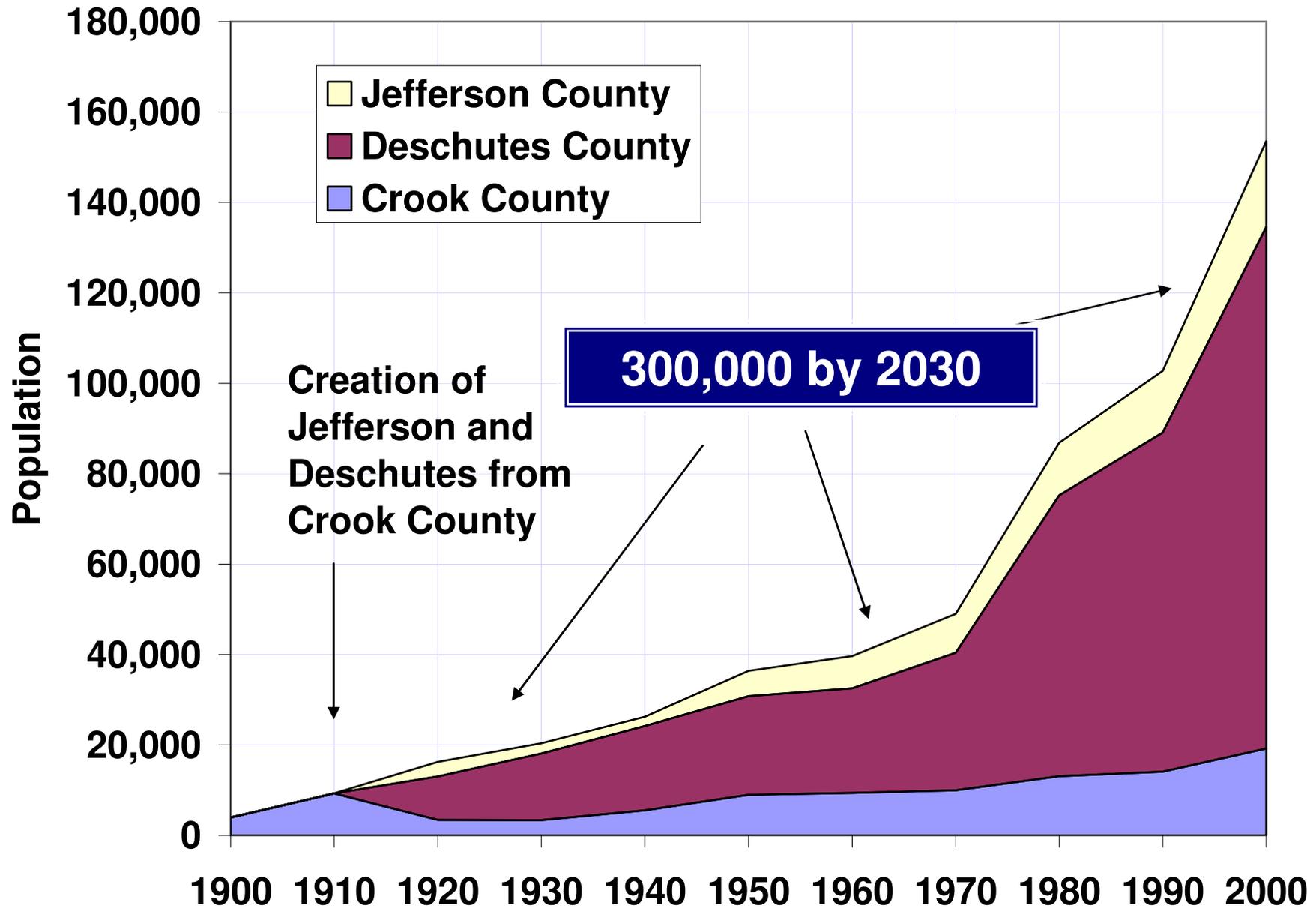
Water Resources  
Coordinator

City of Bend

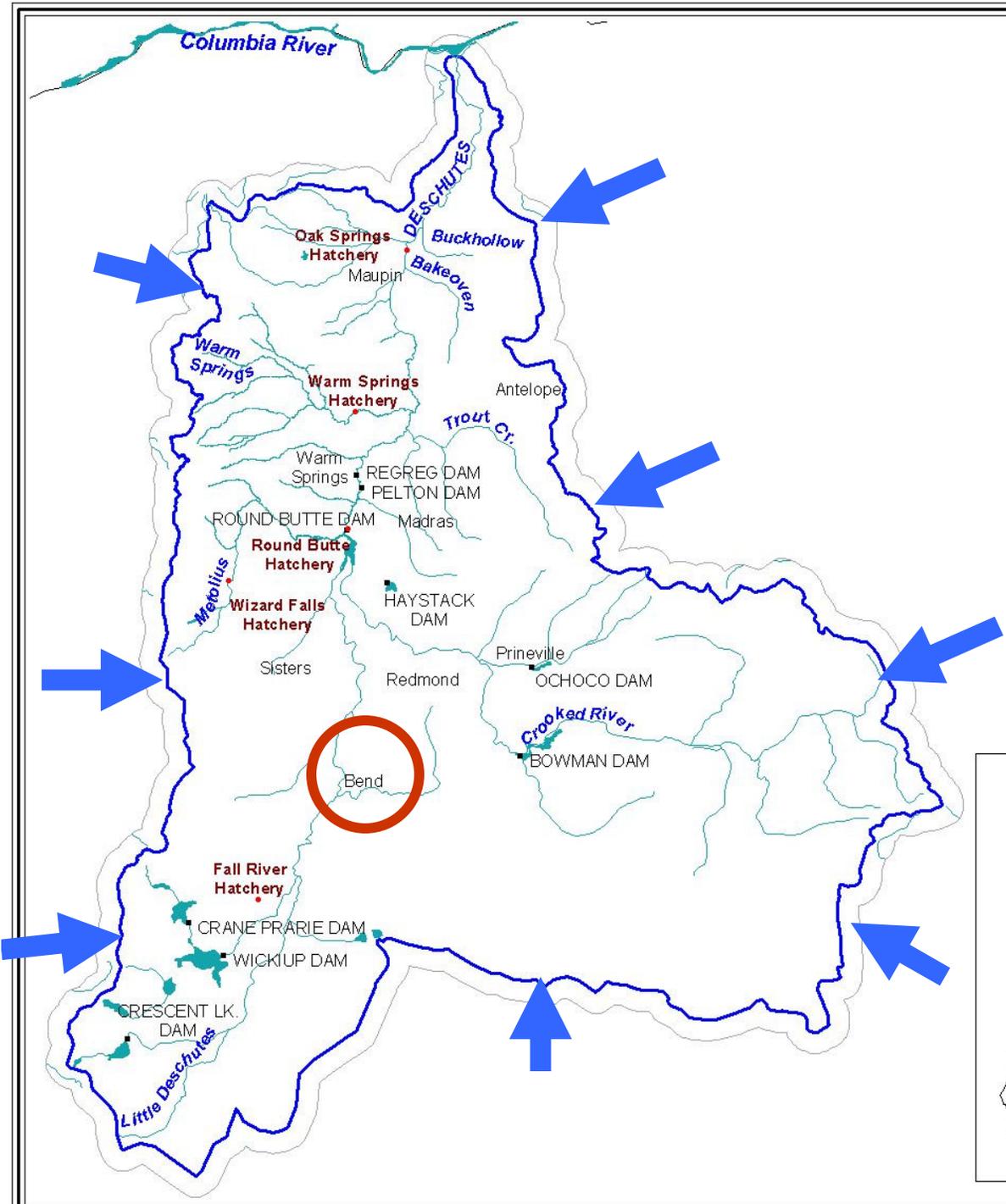
**Change!**



# Population Growth in Central Oregon



# DESCHUTES BASIN



**LEGEND**

- Hatchery
- Dam
- Major Streams
- Water Bodies
- Deschutes Basin

10 0 10 20 Miles



# Bend Fast Facts

## Population

- ⊕ 75,000 and growing fast
- ⊕ Only Serve water to about 70% of Bend

## Water Service Connections

- ⊕ 23,000 Connections
  - ⊕ **1/3 Commercial**
  - ⊕ **2/3 Residential**

## Current Water Use

- ⊕ 11 mgd annual average daily use
- ⊕ 5 mgd Average winter season
- ⊕ 18 mgd Average summer season
- ⊕ 27 mgd One Day Peak (largest one day total...)
- ⊕ 50% surface 50% groundwater



**Irrigation District Agricultural Land in Basin  
+/- 160,000 Acres  
(Irrigation District Boundary)**

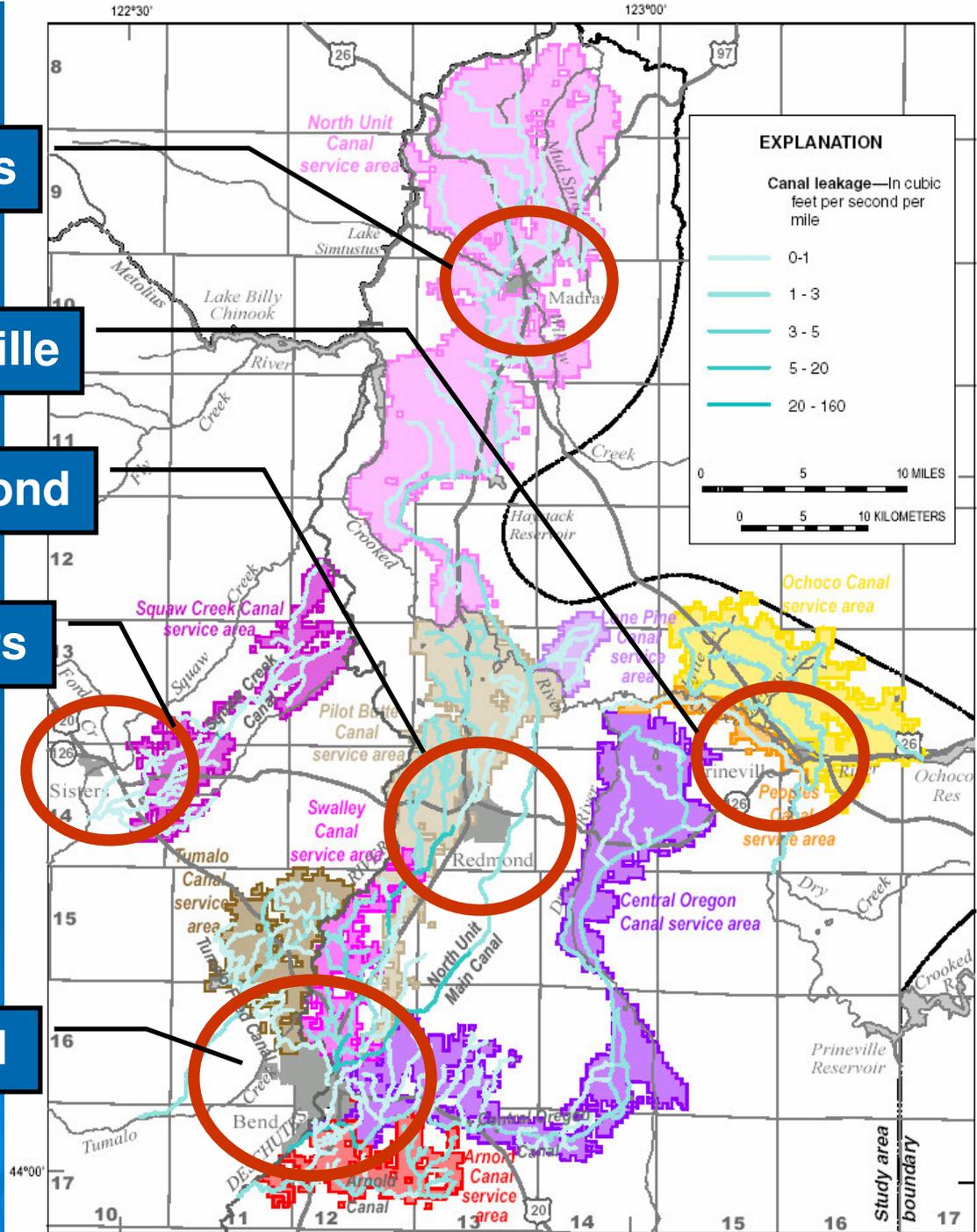
**Madras**

**Prineville**

**Redmond**

**Sisters**

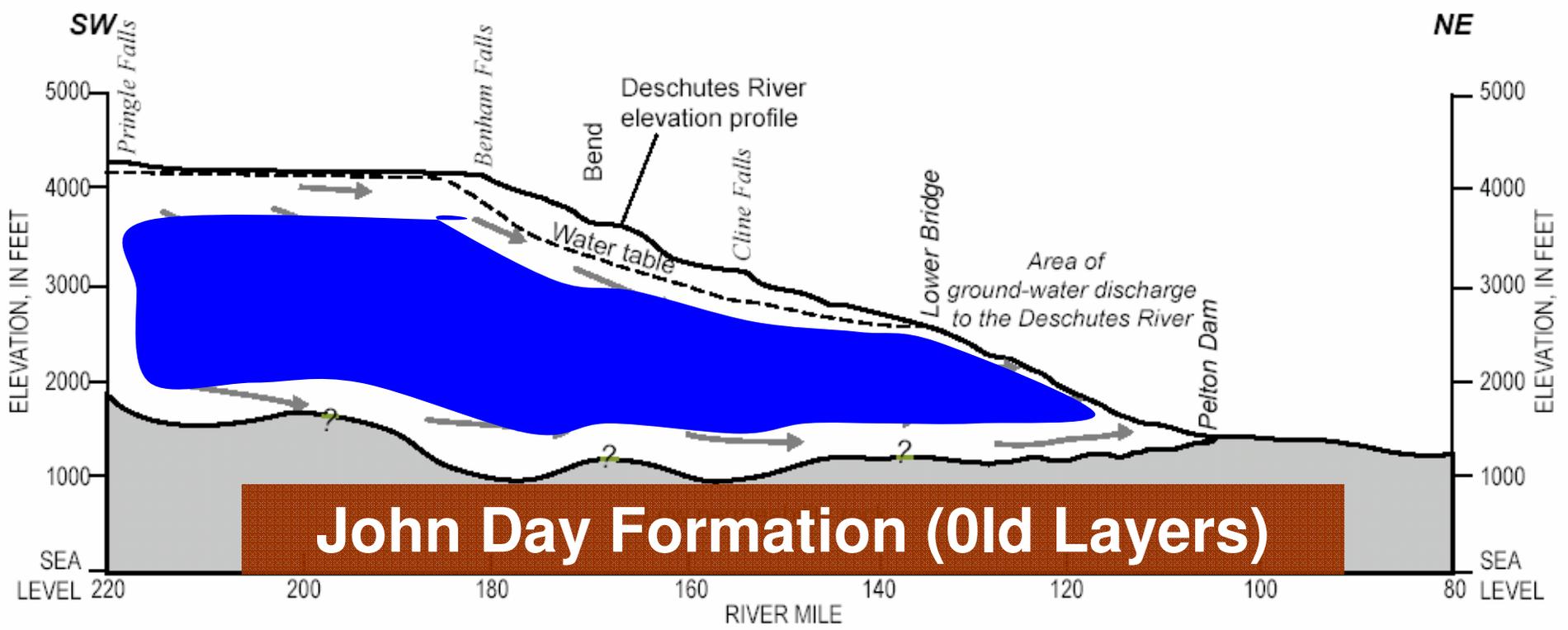
**Bend**



Massive Aquifer that recharges 2.4 *billion* gallons per day... (3800 cfs annually)

Think huge underground reservoir...

(North to south slice)



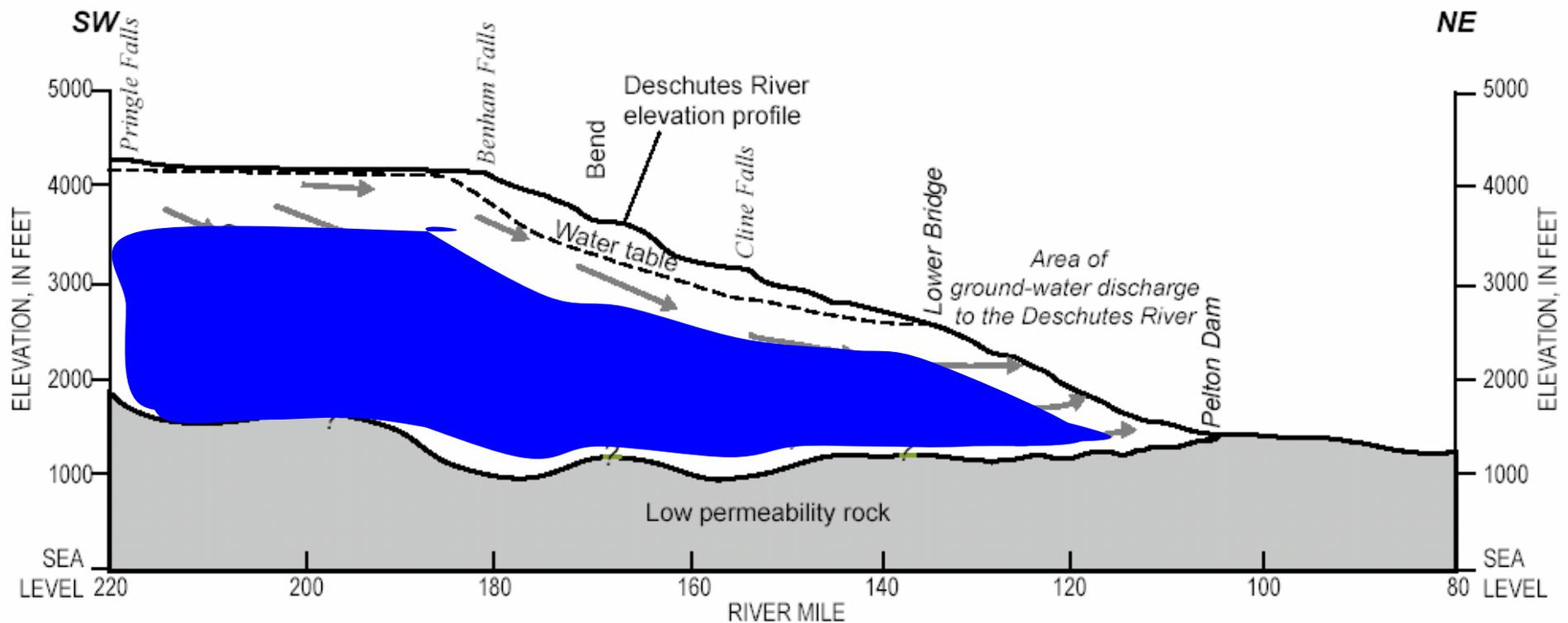
**John Day Formation (Old Layers)**

NOT TO SCALE

# A “flow through” aquifer...

Dynamic, constantly refilling, amazing...

(North to south slice)

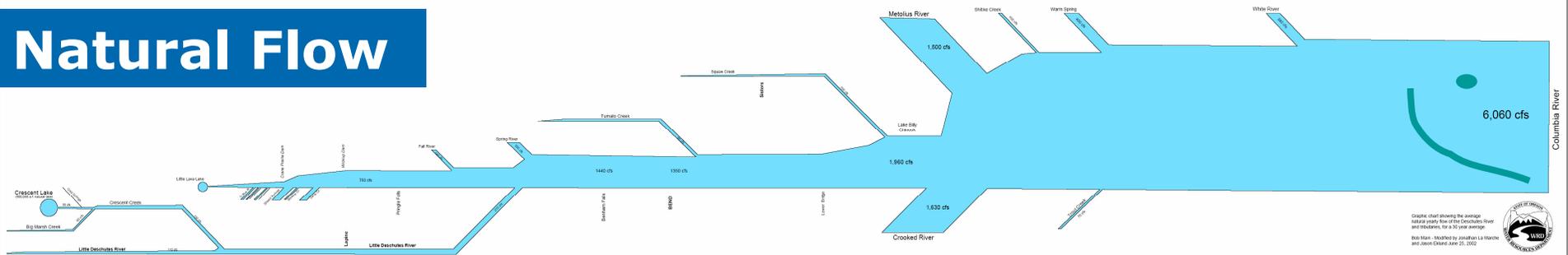


NOT TO SCALE

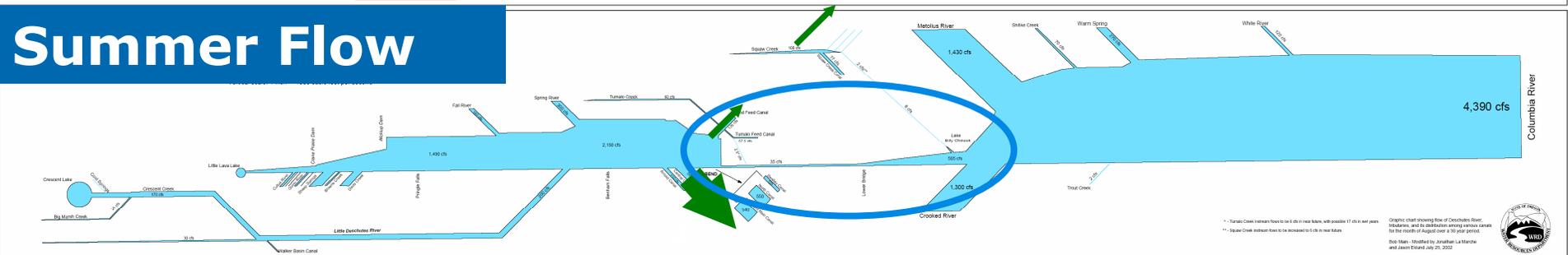
# What's the Problem?

(30 yr averages)

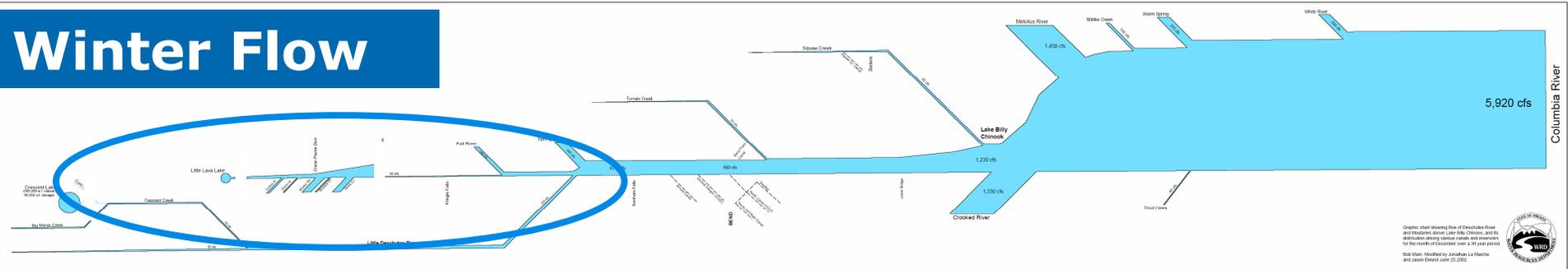
## Natural Flow



## Summer Flow



## Winter Flow



# Drivers of Change

- Surface water / groundwater connection made through USGS Study
- Basin closed to any new groundwater appropriation – link to Scenic Waterway
- Uncertainty led to “talk” of a water related building moratorium – steering committee formed (workgroup)
- New GW rights “conditioned” with conservation and mitigation
- No new water without mitigation provided PLUS all the other new issues (HB 3038, WMCP’s, ESA, etc)
- After four years – Program rules put in place

# “New Infrastructure”

## “How to Handle Mitigation”

### ➤ ***Legal & Legislative*** Capacity

- Supreme Court Case
- HB 3494 – Groundwater Mitigation Rules

### ➤ ***Organizational*** Capacity

- Central Oregon Cities Organization (COCO)
- Deschutes Water Alliance (DWA)
- **DWA Water Bank**

### ➤ ***Information*** Capacity

- Basin Supply & Demand, DWA Studies

### ➤ ***Funding*** Capacity

- Local, SDC, Rates, State, Federal, Private

# External: “New Infrastructure” Proactive - Regionalization

- Deschutes Water Alliance
  - Confederated Tribes of Warm Springs
  - Central Oregon Cities Organization
  - Deschutes Basin Board of Control (Districts)
  - Deschutes River Conservancy (DWA)
- Central Oregon Intergovernmental Council
- Upper Deschutes Watershed Council

# Deschutes Water Alliance

## Mission

- Move stream flows *toward* a more natural hydrograph while securing and maintaining improved instream flows and water quality to support fish and wildlife
- Secure and maintain a reliable and affordable supply of water to sustain agriculture
- Secure a safe, affordable, and high quality water supply for urban communities

# Future Groundwater Demand

**New Studies Just Completed**

**Deschutes Water Alliance**

**2005: 35,895 AF**

**2025: 58,594 AF**

**2025 Estimate Represents about 1.8% of annual  
groundwater “flux” (annual recharge 3800 cfs =  
about 2.4 BILLION GALLONS PER DAY)**

# Deschutes Water Alliance

“Irrigated” Acre compared to “Urban” Acre

Example: Typical  
Irrigation District Use

Farm land  
diverts ~7  
acre feet per  
acre

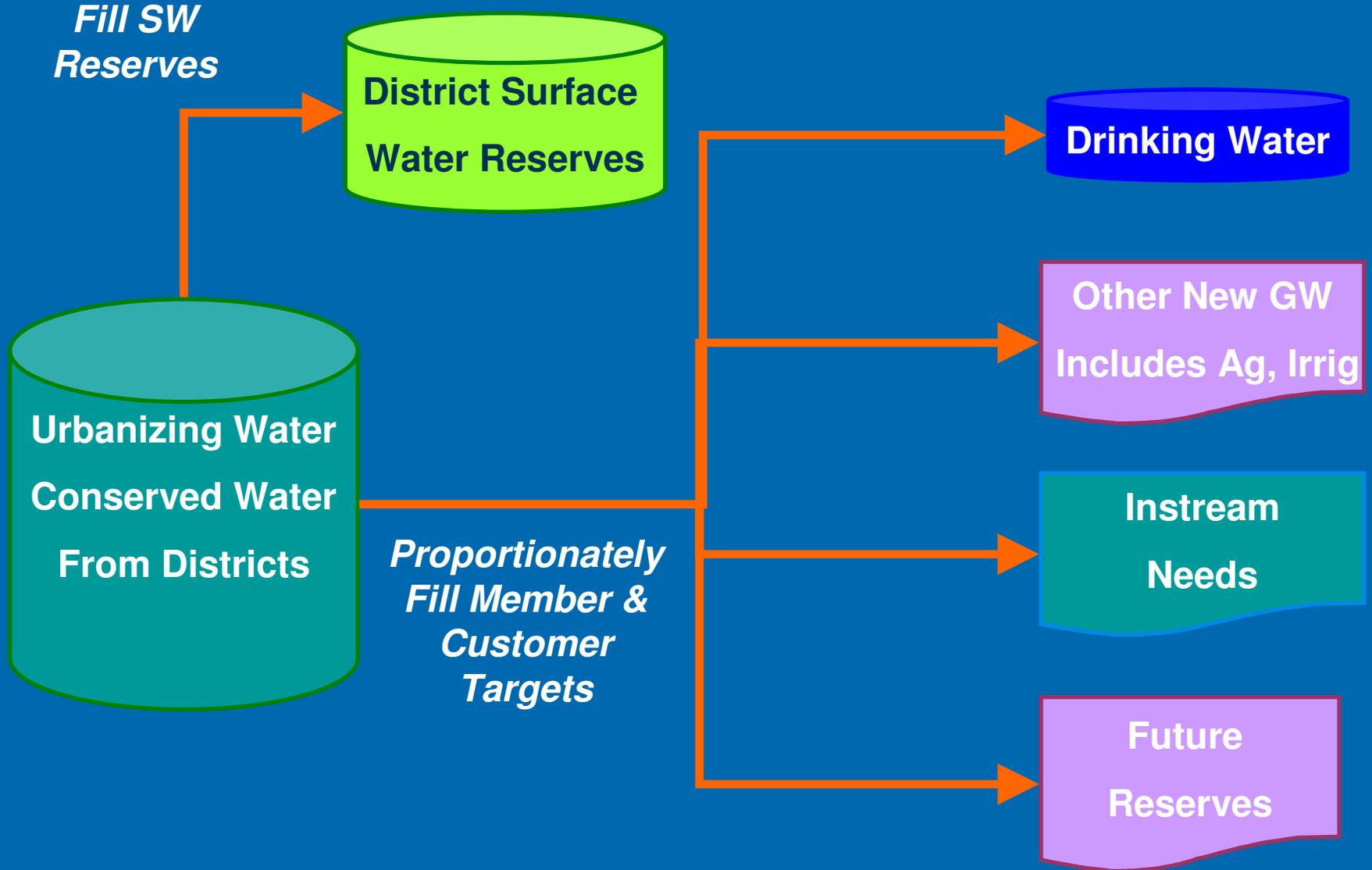
Example: Typical  
Municipal Use

Small use per acre, small  
overall use in the basin, but...  
*fastest growing*

Bend diverts  
0.9 acre feet  
per acre

# Deschutes Water Alliance WATER BANK

## General Concept



# “Internal: New Infrastructure” Programs and Processes

## ➤ Planning: Integrated Resource Planning

- Water Master Plan (pipes – pumps – reservoirs)
- Water Rights Master plan (think long term)
- Water Management and Conservation Plan

## ➤ Education: Public Involvement / Conservation

- WaterWise Program: Efficiency to Conservation
- Smart Controllers / Water Sensitive Urban Design
- “River-Friendly” Landscaping (Jointly with Stormwater)

## ➤ Financial: Rates - Conservation Based

- More Data / More Customer Information
- Refined customer classes
- Targeted Planning – capital

# Deschutes: No Moratorium “*Reallocation*” is Working Today

- New Supply – urbanizing acres within irrigation districts – DWA Water Bank
- Bend’s groundwater permits took 14 years, and will cost over \$10 million dollars just for required mitigation and related process
- Job is never done – think 5 year cycles
- Link to 20 year UGB processes / Goals
- Adaptive Management Principles

# New Challenges

Create long-term institutional “infrastructure” capacity, it will be used again!

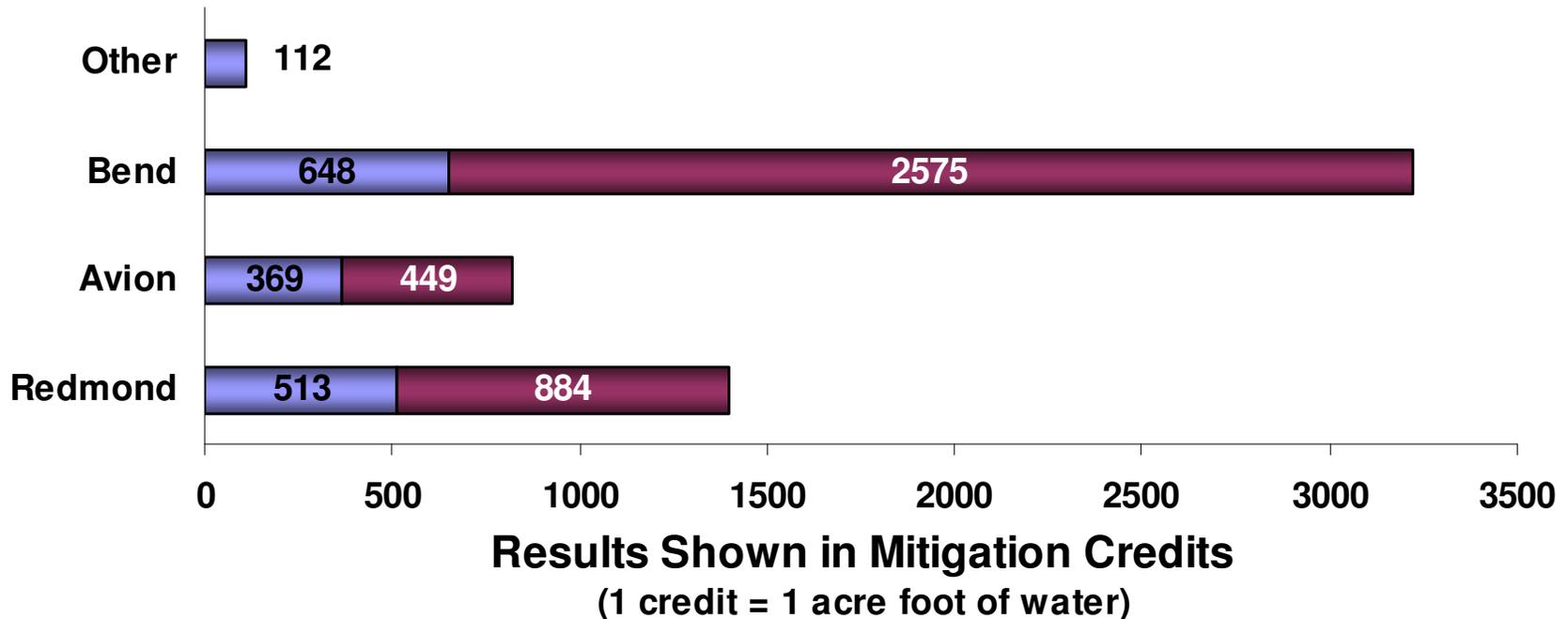
- ESA – steelhead reintroduction
- Climate change
- M-37 / land use / water related impacts
- 2008 Legislative Session
- ?

# Lessons Learned .....

- Appropriate Solution: Collaboration moved us past gridlock and the “M”-word
- Regional approach increased creativity and financial ideas – kept us working together
- Implementation challenges: Deschutes GW Rules / ongoing capitalization
- Economics: Avoids litigation (\$\$) and is Anti-speculative, keeping water costs down for all new needs is key driver (market based)
- Removed uncertainty – SDC fundable

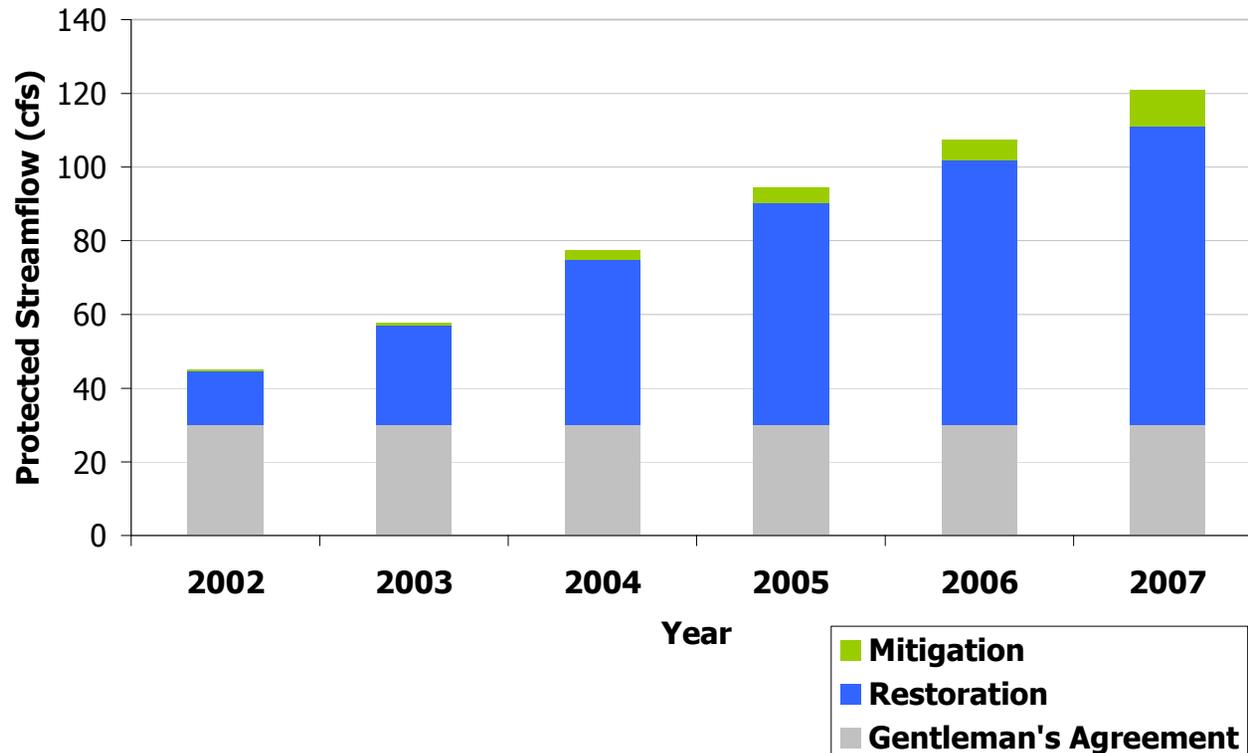
# DWA Bank Progress Meeting Qualified Mitigation Obligations

## DWA Bank: Progress Towards Mitigation Goals (Transfers in Process and Estimated Allocations for 2008)



# Restoration v. Mitigation in the Deschutes River

Restoration v. Mitigation in the Deschutes River



# Questions?

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