

Water Transfers in the Yakima River Basin

Tom Ring

Water Exchange/Water Banking
Workshop

Moses Lake

July 10, 2008

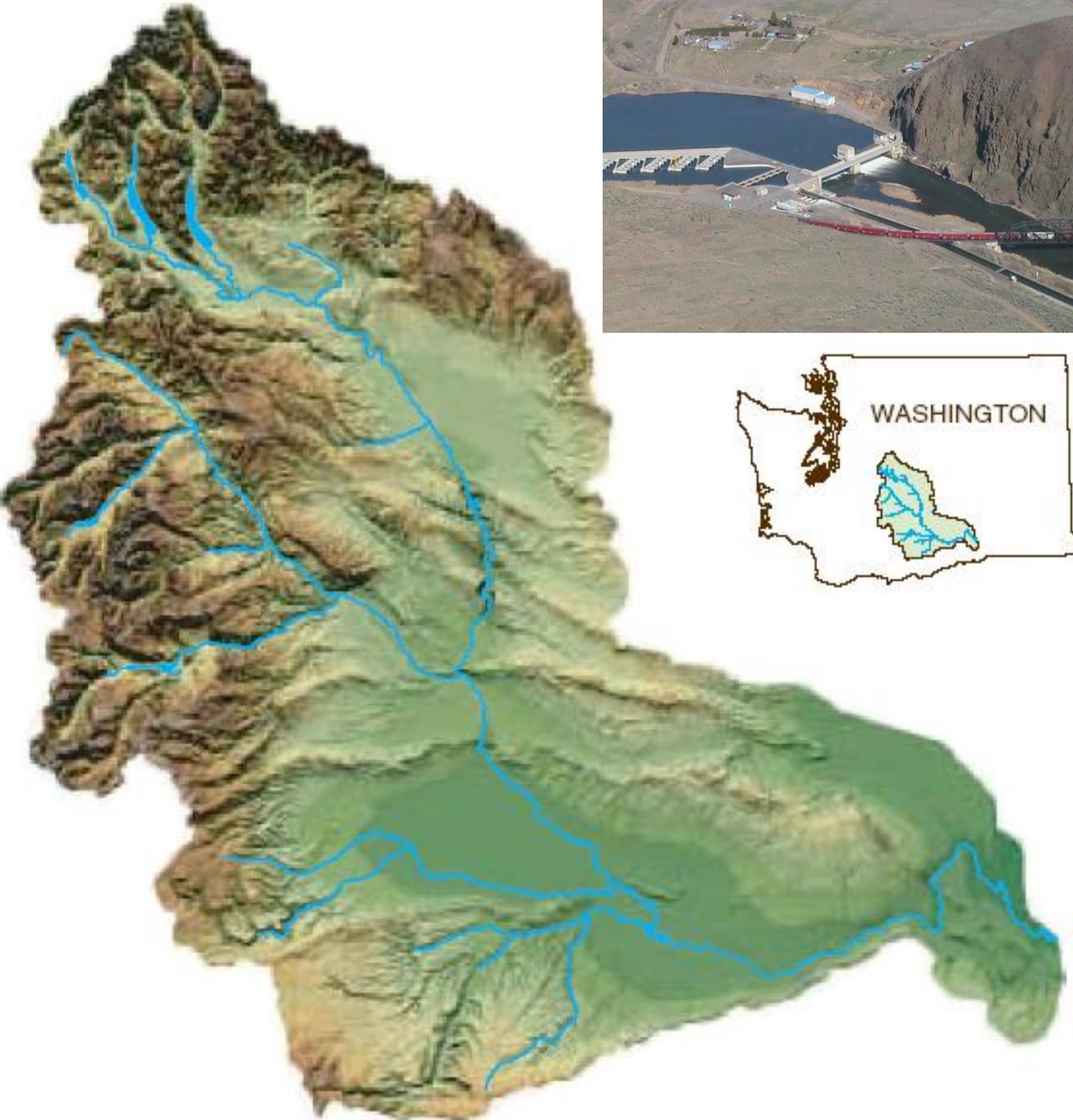
Points

- Unique Yakima basin management system (one bucket) comprised of
 - Storage
 - Snowmelt
 - Return flows
- Senior instream flow rights (no WAC flows)
- Supply to perennial crops curtailed in droughts
- No unappropriated water for growth
- Since 2001, group in place to evaluate transfers according to specified criteria
- General vs. basin-specific applicability

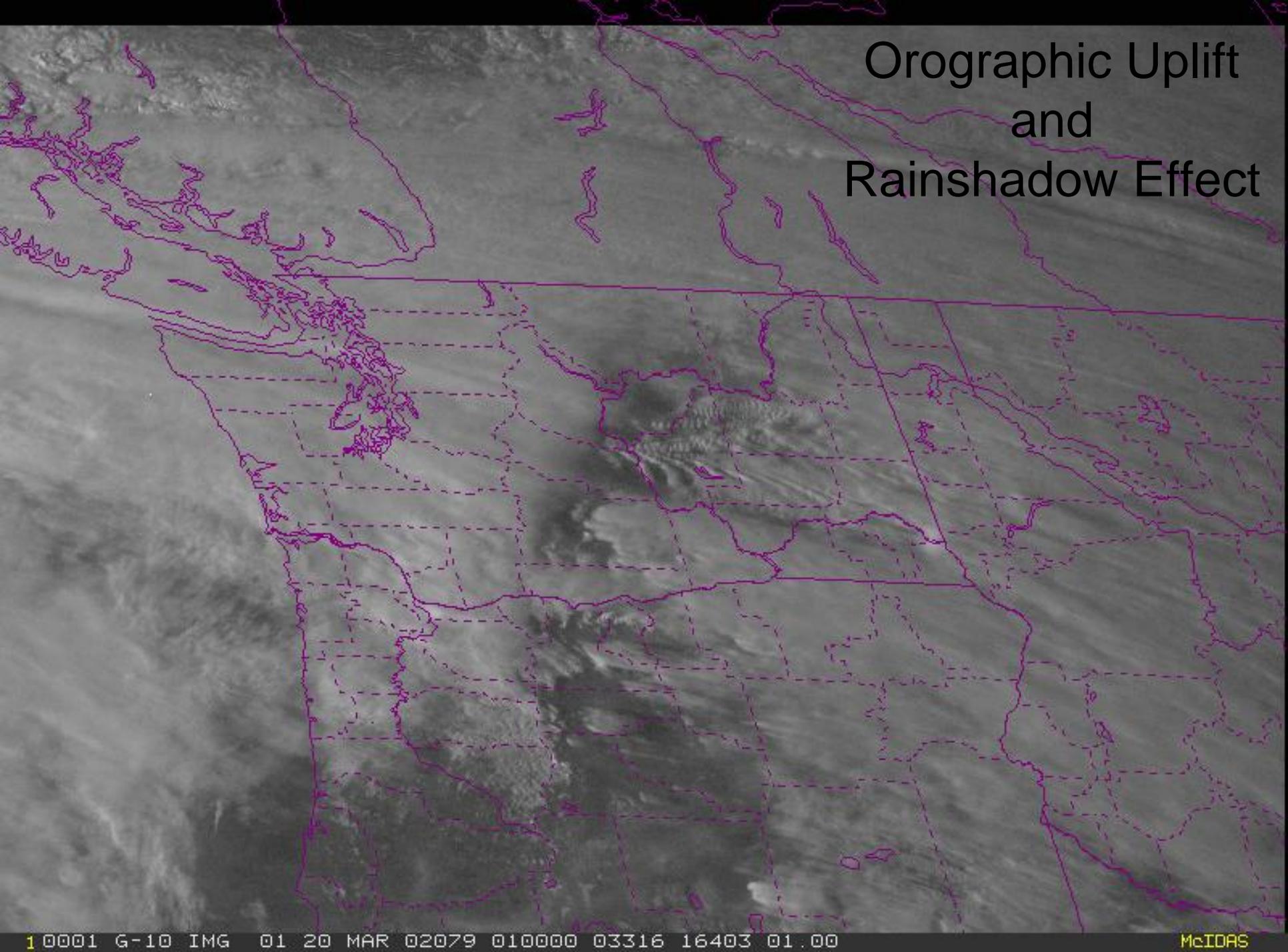
The Obligatory Disclaimer

- The views expressed herein are my own
- I do not speak for the Yakama Nation
- This talk does not express legal or policy positions of the Yakama Nation

Yakima River Basin



Orographic Uplift and Rainshadow Effect



Precipitation

Precipitation is:

- Plentiful in the mountains (orographic uplift)
- Sparse in the lowlands (rainshadow effect)
- Mostly in winter
- Insufficient for agriculture

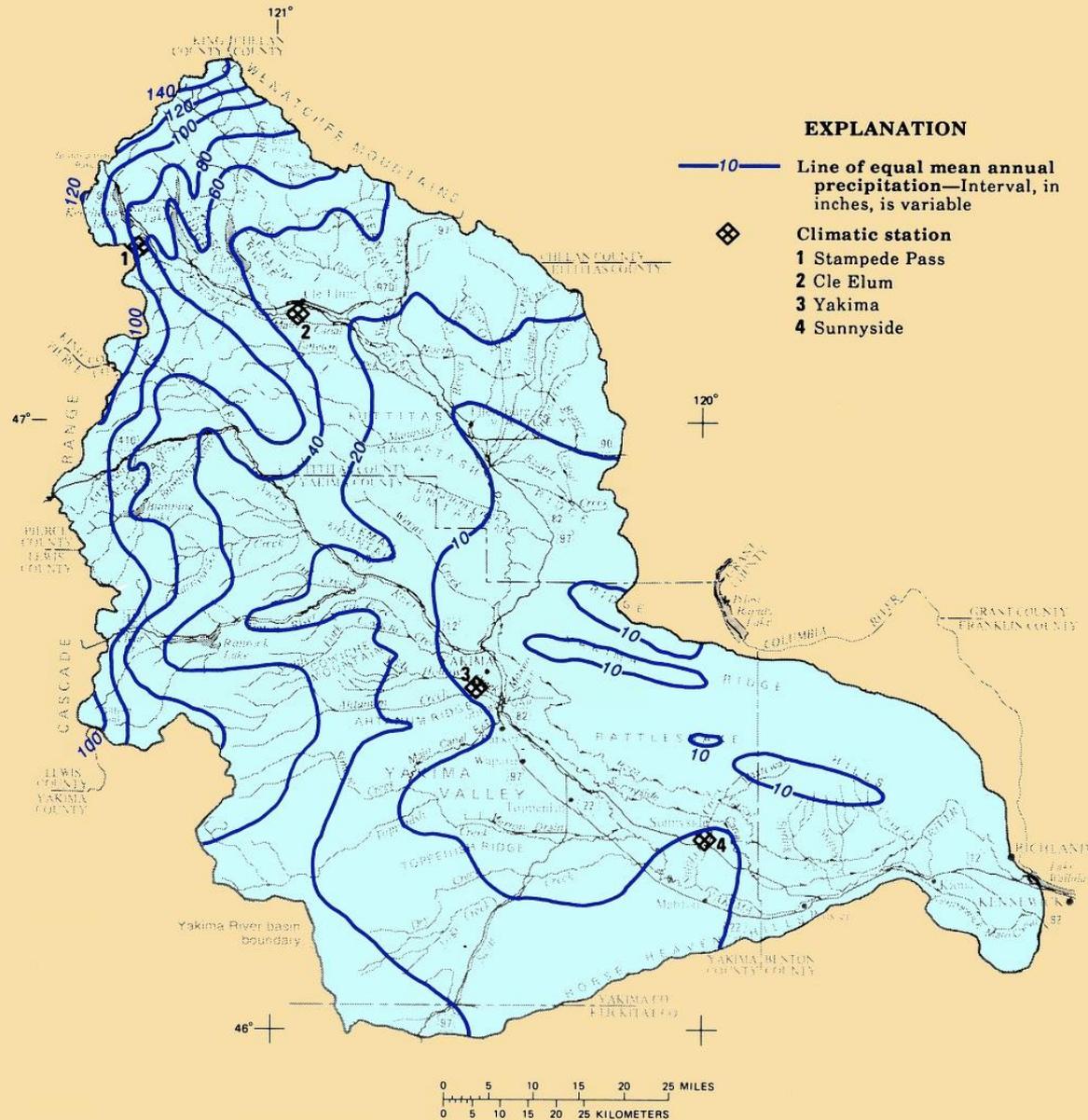
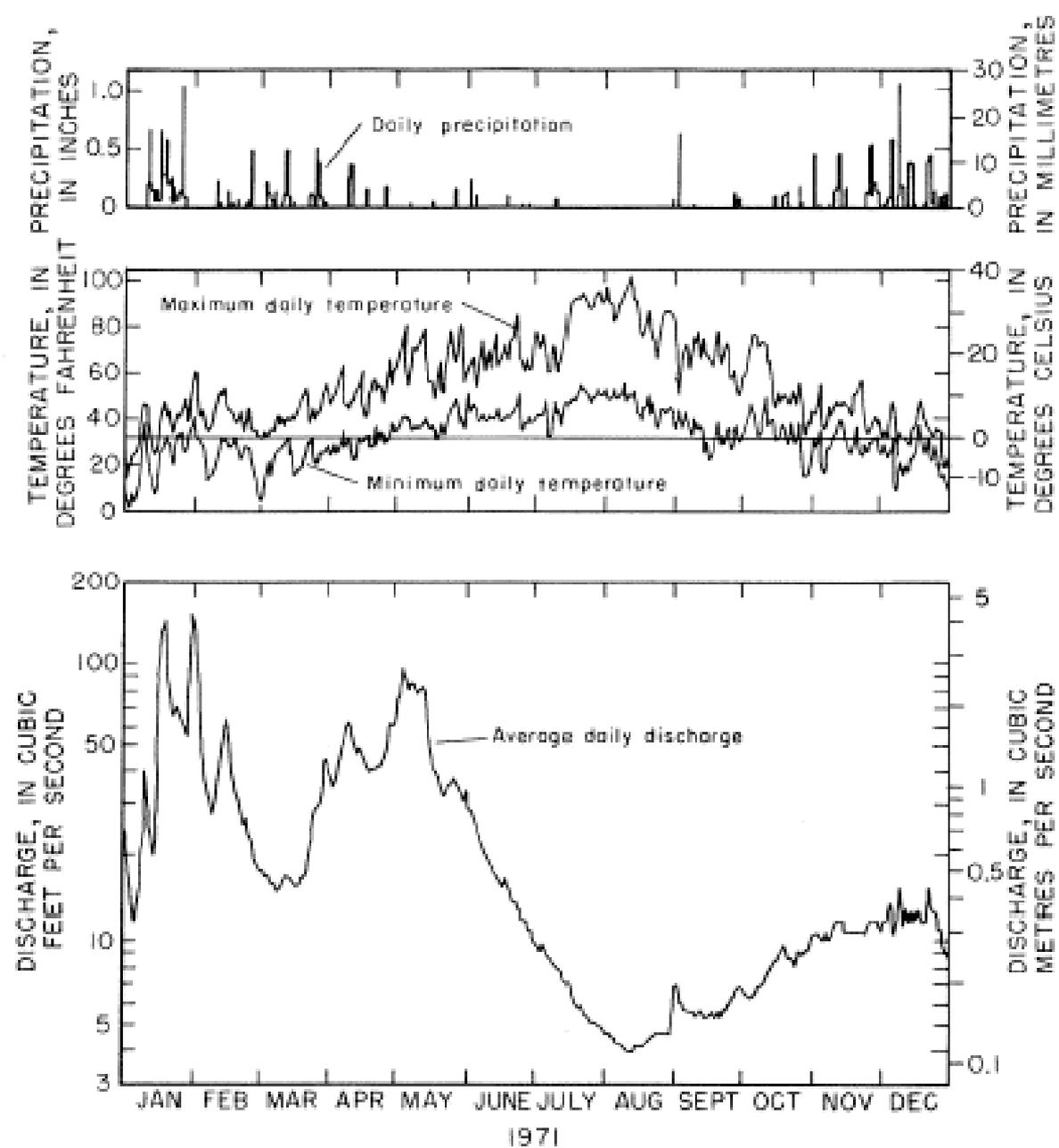


Figure 4.--Mean-annual precipitation in the Yakima River basin, Washington, 1951-80 (National Oceanic and Atmospheric Administration, 1982).

From U.S Geological Survey Open-File Report 91-453



Summer is dry

Summer is hot

Runoff peaks in late spring

FIGURE 5.--Daily flows of North Fork Simcoe Creek near Fort Simcoe (12506300), and maximum and minimum daily temperatures and daily precipitation at Rimrock Tieton Dam.

Key Locations in Yakima Basin

Keechelus →
Kachess →
Cle Elum →

Reservoirs

Diversions

KRD Diversion →

Bumping →

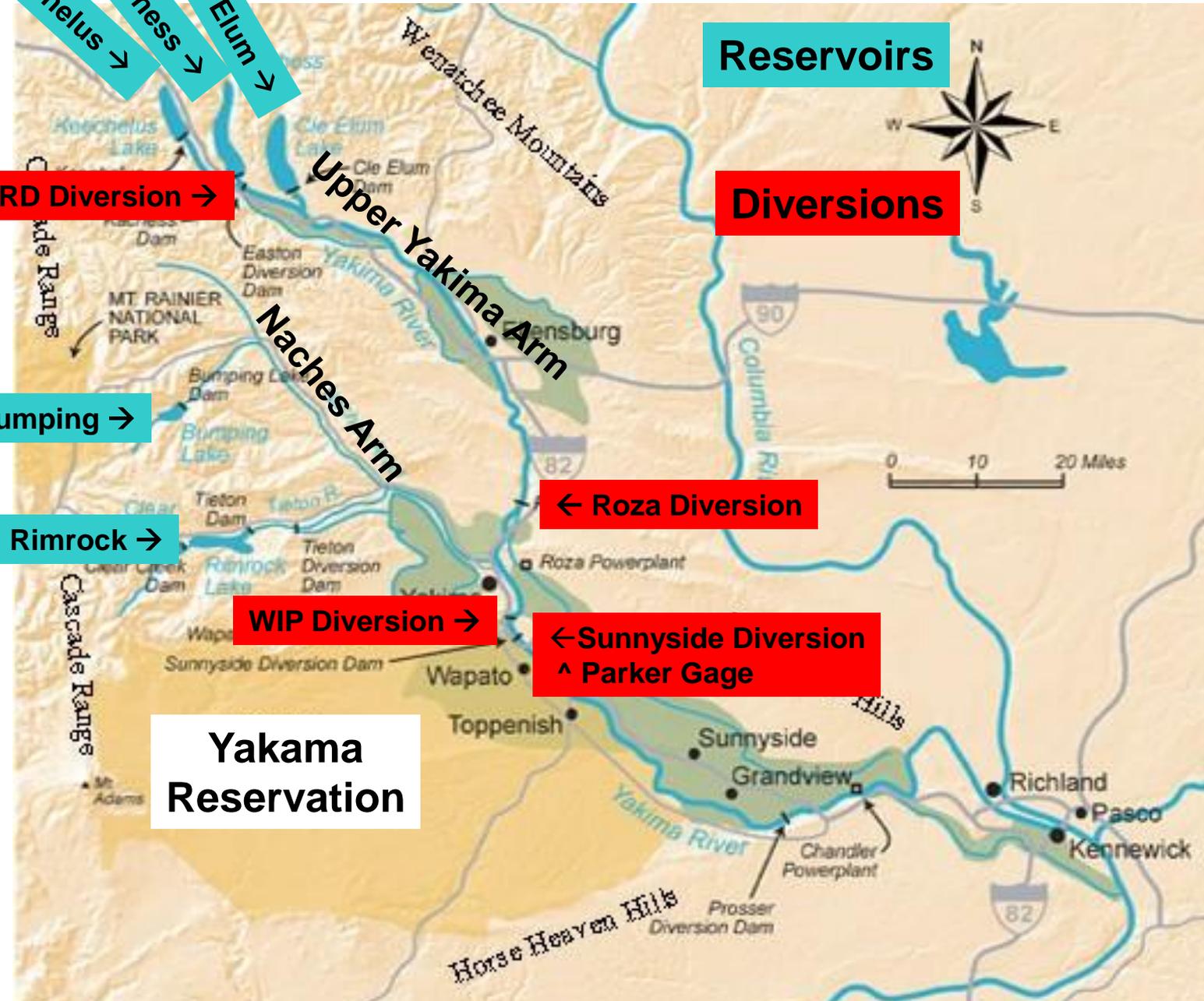
Rimrock →

WIP Diversion →

← Roza Diversion

← Sunnyside Diversion
^ Parker Gage

Yakama
Reservation



Changing hydrograph

Effects of storage and diversion

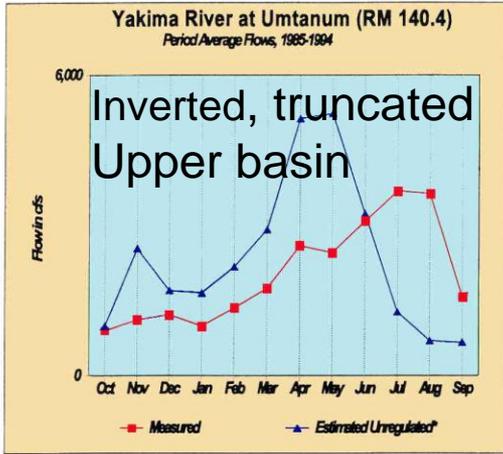


Figure III-1a

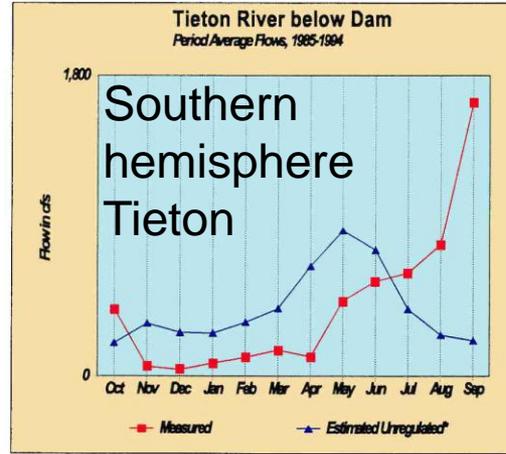


Figure III-1b

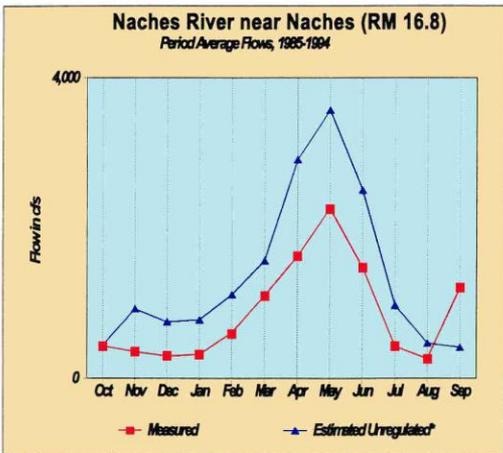


Figure III-1c

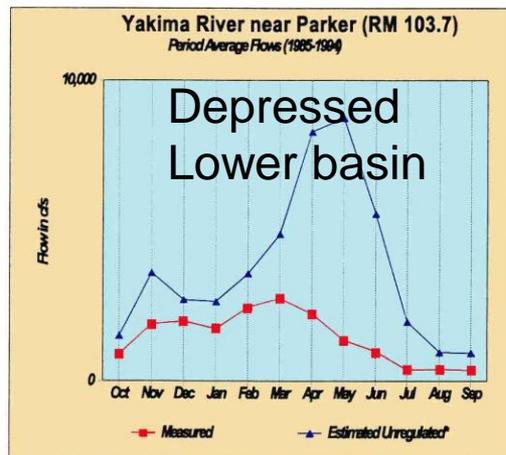
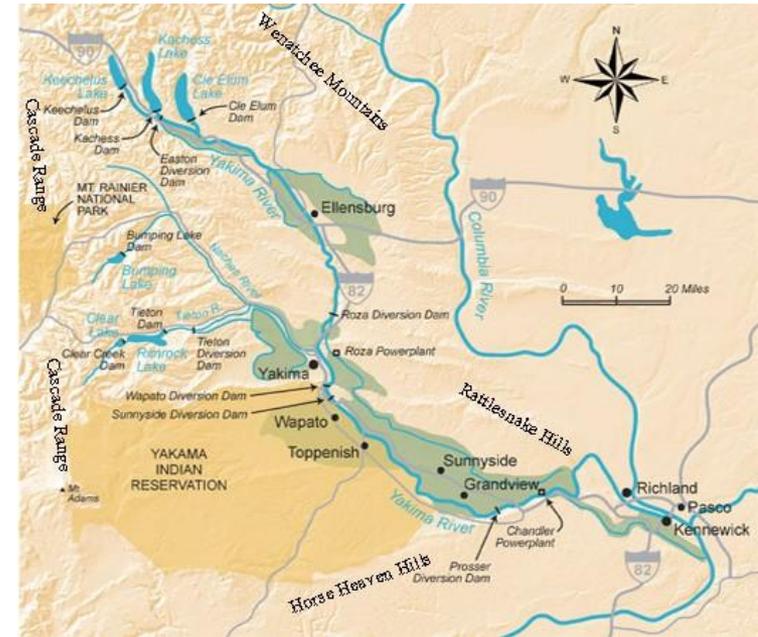


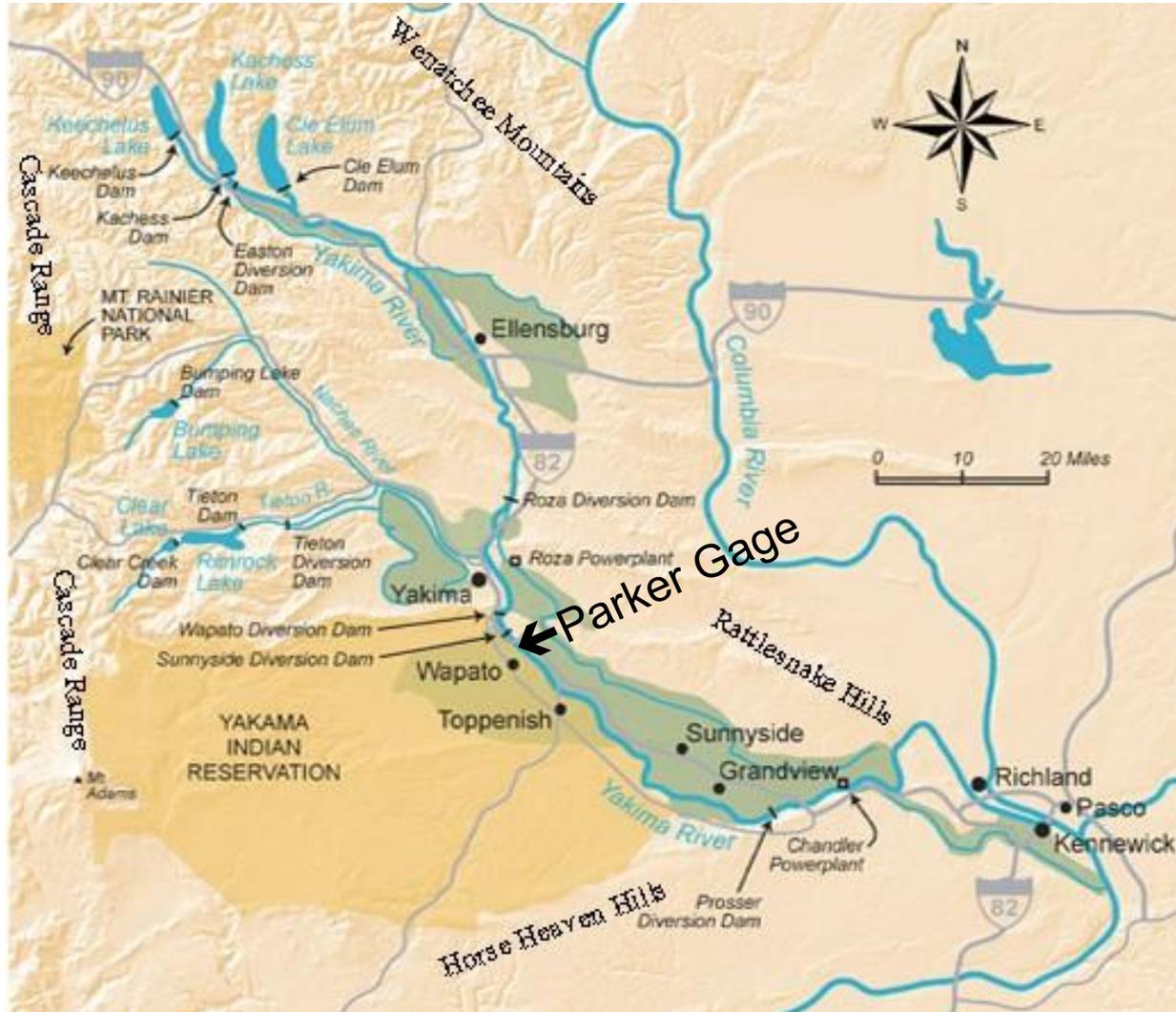
Figure III-1d



← Storage Control

Figure III-1.—Conceptual comparison of measured flow and estimated unregulated flow (measured flow corrected for storage, estimated diversions, and estimated return flows).

The Bucket as Funnel



- Think of the Yakima basin as a funnel tapering to the Parker Gage.
- Total Water Supply Available (TWSA) includes estimated runoff, reservoir storage and return flow above Parker
- Reclamation uses storage releases, runoff, and return flow to meet diversions above Parker and flow over Parker
- This layout allows some flexibility to move water around, causes some limitations

Water Management in the Yakima River Basin

- 3-2-1-Turnoff
- Seniors (pre-May 10, 1905, (withdrawal date))
 - Limiting Agreements
- Juniors aka proratables (May 10, 1905)
 - Basin fully appropriated by engineering design
- YN (Treaty/federal rights, can't be impaired by state)
 - Time Imm. (Seniorest)– Quackenbush - Winans
 - 1855 - Winters
 - Proratable
- Post 1905 (Juniorest)
 - Roza motion
 - Court order (what a fully appropriated basin looks like)
 - State program - Draft State-USBR contract

Water Management in the Yakima River Basin (cont.)

- 1945 Consent Decree
 - TWSA (the one bucket)
 - Unregulated tributary and return flow above Parker
 - Storage Control (key to ability to “bank”)
 - NRP – Forestalls storage control and prorationing
- Acquavella – The 30 years war (no groundwater)
- YRBWEP – Target flows (floor, 3,4,5,6), BCP, IOP
 - Slow progress on BCP, Sunnyside first
- Groundwater MOA
- WTWG, Acquisitions, Transfers
 - WTWG born of drought, addendum to MOA

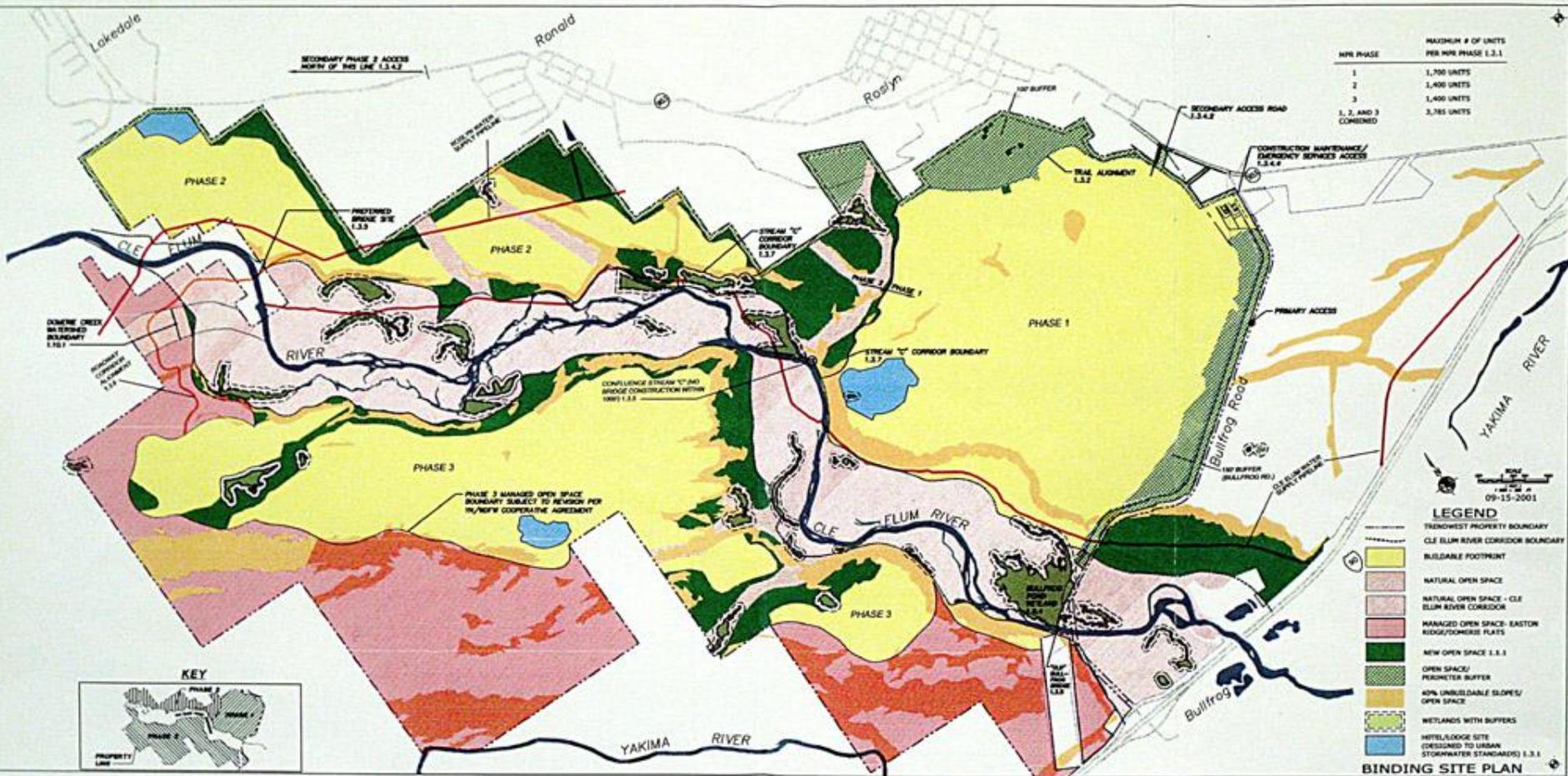
Got Water?

	<u>Average</u>	<u>Peak</u>	<u>Annual</u>
KRD	300 mgd	766 mgd	336 kaf
Seattle PU	139 mgd	250 mgd	156 kaf

- SPU serves 1,350,000 people in 581,700 households in Seattle, Bellevue, Redmond, Renton, Mercer Island, Bothell, Kirkland, Tukwila, Edmonds, Duvall, Highline Water District, Shoreline Water District, Woodinville Water District, Cedar River Water & Sewer District, Water District No. 20, Water District No. 45, Water District No. 49, Water District No. 90, Water

District No. 119, Water District No. 125 et al.

- The (other) Big Apple
 - KRD figures are “entitlement”, Seattle actual use
 - Sources: KRD from IOP, Seattle from SPU Web Page



Suncadia, nee Mountainstar, aka Trendwest

- Exempt wells: Zero
- New water rights: Zero
- Houses on Cle Elum River floodplain: Zero
- Economic value to County: Huge
- Ecological value: Priceless

Roots

- Public Law 103-434 - - - October 31, 1994
 - AKA YRBWEP, Title 12
 - 1201 (5) The purposes of this title are--...
 - to encourage voluntary transactions among public and private entities which result in the implementation of water conservation measures, practices, and facilities...
 - 1203(c)(3)(E) The Conservation Advisory Group shall--..
 - provide recommendations consistent with statutes of the State of Washington on rules, regulations, and administration of a process to facilitate the voluntary sale or lease of water.

The Box

- CAG developed criteria generally
- Trial by drought in 2001
- Criteria (the box)
 - Water would have been used
 - Water Budget (TWSA) neutral
 - Transfer adheres to delivery schedule
 - No adverse change to streamflow
 - Refined to add operational constraints

The Box Close Up

Water Would Have Been Used But For Transfer

- Would'a Could'a Might'a
- Valid water right
 - Adjudication makes easier
 - Some subject to litigation rejected
 - Dual water rights rejected if transfer would increase consumptive use
- Means exist to exercise water right
- Inchoate = inappropriate

The Box Close Up

Water Budget/TWSA Neutrality

- Must be equivalent reduction in Cons. Use
 - Most conservation only counts in bypass reach
 - Unstacking water rights doesn't fly
- Increasing CU above Parker gage would
 - Increase prorationing in drought year
 - Decrease carry over, increasing probability of drought in following year
- CU, not diversion is q for transfer
 - Based on WIG (at donor site)
 - E.g. Roza needs more acres per acre
 - Consideration for drought precursor conditions
 - (WIG plus)
- Land has to remain dry for the period of transfer

The Box Close Up Adheres to Schedule

- Both Q_i and Q_a determine schedule of use
- I.e. water available at new POD/U only when it would have been available at old
- Exception
 - Water can be “bucketized”
 - E.g. Roza acquires natural flow right
 - USBR and Ecology determine reliable QA
 - After storage control
 - Reclamation stores and allows use on demand

The Box Close Up

No Harmful Change in Streamflow

- Note “change” rather than reduction
 - In some reaches flows much higher than natural
 - Particularly upper Yakima in irrigation season
 - River used as ditch to transport water to lower valley
 - Reduction not a problem
- Other places/times, no reduction acceptable

The Box Close Up

Operational Considerations

- Position of diversion relative to storage
 - E.g. SVID can receive water from 5 reservoirs
 - Roza 3
 - KRD 2
 - YTID 1
 - Tributaries 0 (or more in cases)
- Can't transfer where can't get the water without harming
 - Instream flow
 - Other out of stream users
- E.g. IN 2001 Roza limited to 50Kaf upstream transfers

Key Locations in Yakima Basin

Keechelus →
Kachess →
Cle Elum →

Reservoirs

Diversions

KRD Diversion →

Bumping →

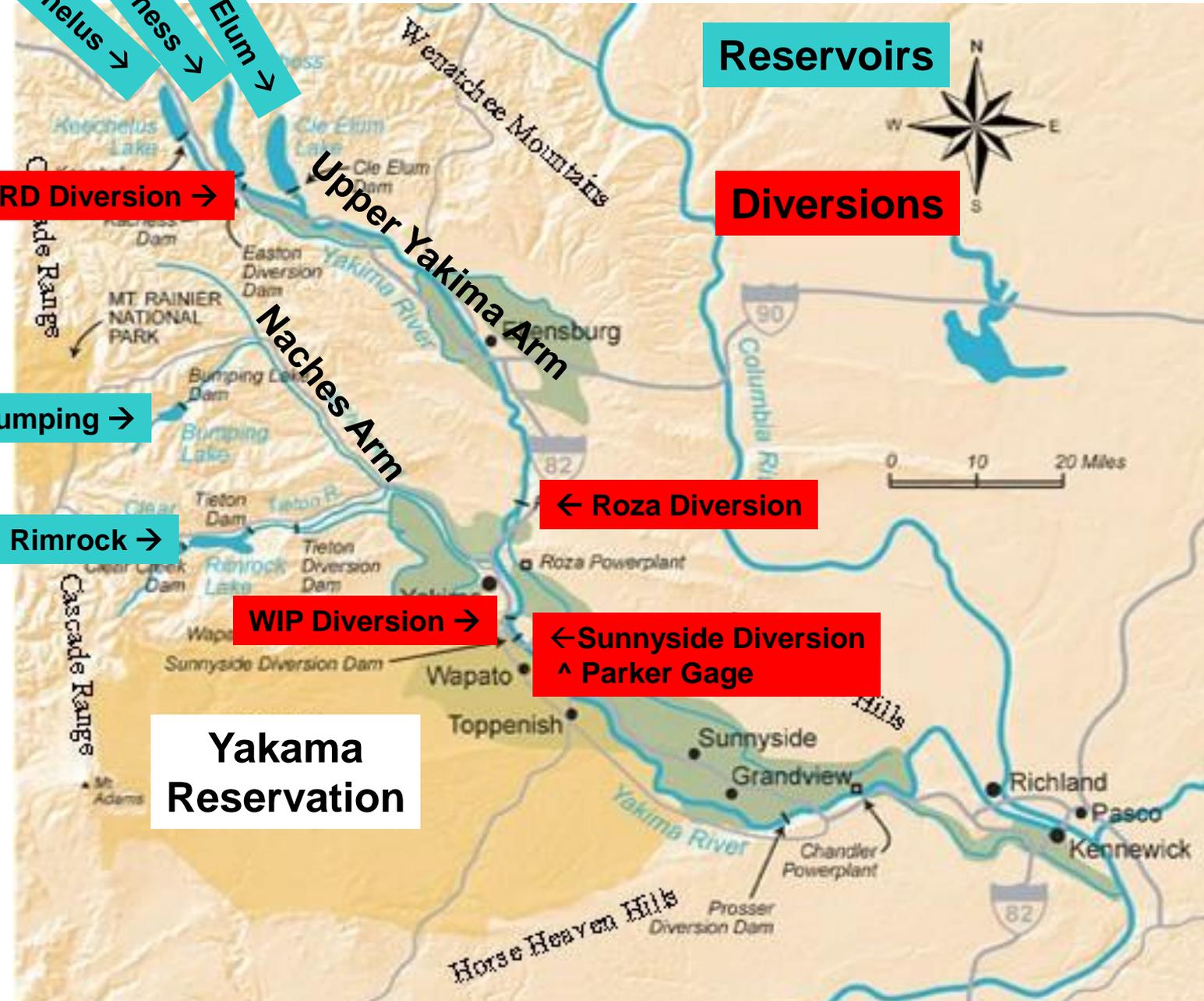
Rimrock →

WIP Diversion →

← Roza Diversion

← Sunnyside Diversion
^ Parker Gage

Yakama
Reservation



Why Does it Work

- Consensus on the box
 - Clear criteria, no negotiation at the table
 - “Just a little” is more than zero
 - Deminimus not welcome at WTWG
 - Water budget neutral is neutral
 - Element of MAD
 - Consensus fast
 - Litigation: See you next drought year
 - Proratables share pain, responsibility
 - People learn and meet criteria
- Ecology’s willingness to fund mitigation
- Adjudication helps (someone please kick me)
- Single entity “operates” basin
- Storage

What's generally applicable

What's not

- Most of the box is
- Most basins not adjudicated
 - Claims (pre-1917 water rights) could be problem
- Can't easily bucketize without storage
- Yakima basin has more data than most
 - Technical resources of Reclamation big
 - USBR and ECY do much of technical work

Where to Learn More

- <http://www.ecy.wa.gov/programs/wr/cro/yakimabasin.html>
- <http://www.roundtableassociates.com/xfer/CAG%20Guidelines.htm>