Green River Basin Plan

Surface Water Model

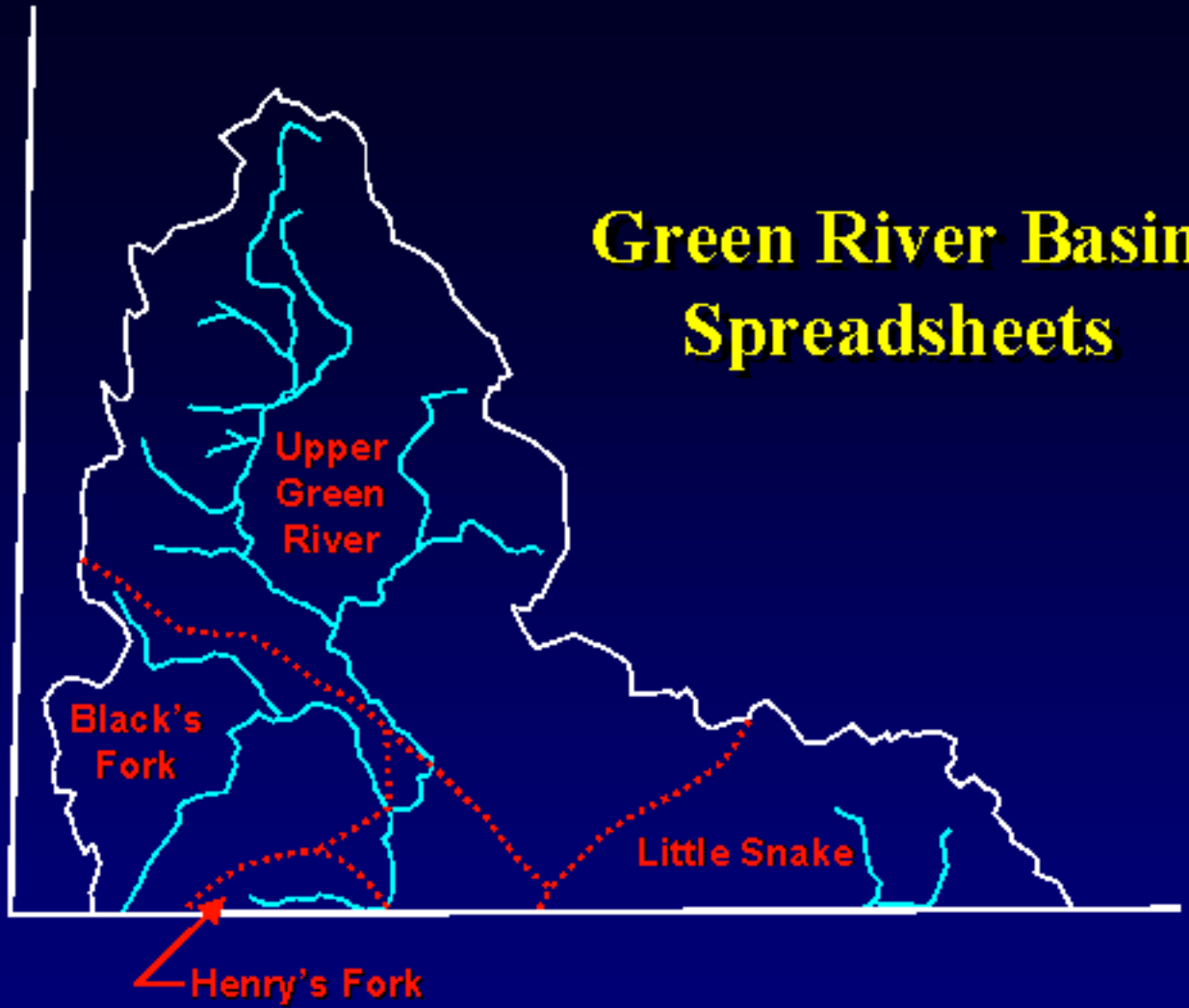
Objectives

- Identify amount, timing, and location of surface water supplies
- Develop integrated understanding of
  - baseflow
  - water use
  - gains and losses
- Develop tool to analyze future uses

Characteristics of the Surface Water Model

- Portray stream system as network
- "Accounting" model
- $Q_{out} = Q_{in} + Q_{gain} + Q_{return} - Q_{diverted}$

Green River Basin Spreadsheets



Simplifying Assumptions

- Individual water rights are not explicitly modeled
- Smaller users aggregated to a single node

Hydrologic Analysis

- Model will represent historical hydrological conditions
- Model will provide monthly flows at points of interest for
  - Average years - middle 60%
  - Wet years - top 20%
  - Dry years - bottom 20%

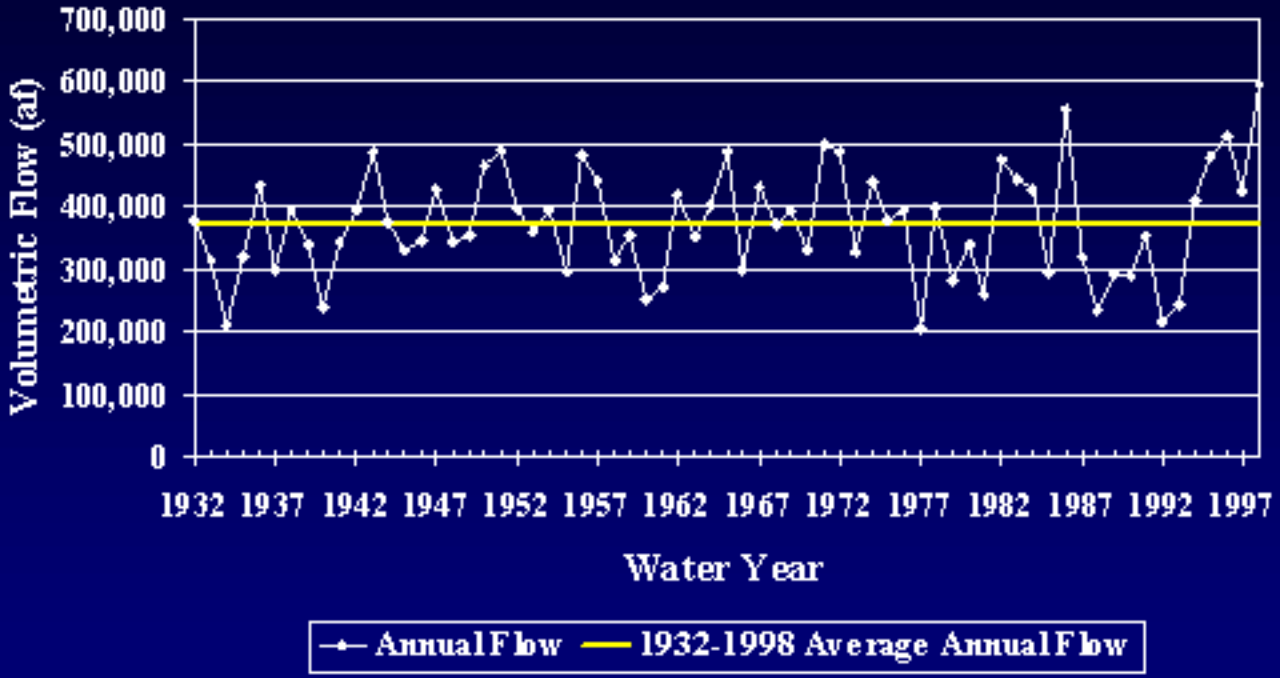
Study Period

- Historical period used to characterize basin
- Study period based on:
  - Available streamflow records
  - History of basin operations, i.e., change in irrigation practice, construction of a new reservoir, or modification of an existing reservoir
  - Suitability of hydrologic conditions

Characteristics of Annual Flow Series for Green River at Warren Bridge

	1932-1998 Record	1970-1998 Record
Mean (af)	370,844	375,210
Standard Deviation (af)	86,730	105,548
Three highest years	1998 / 1986 / 1996	1998 / 1986 / 1996
Three lowest years	1977 / 1934 / 1992	1977 / 1992 / 1988

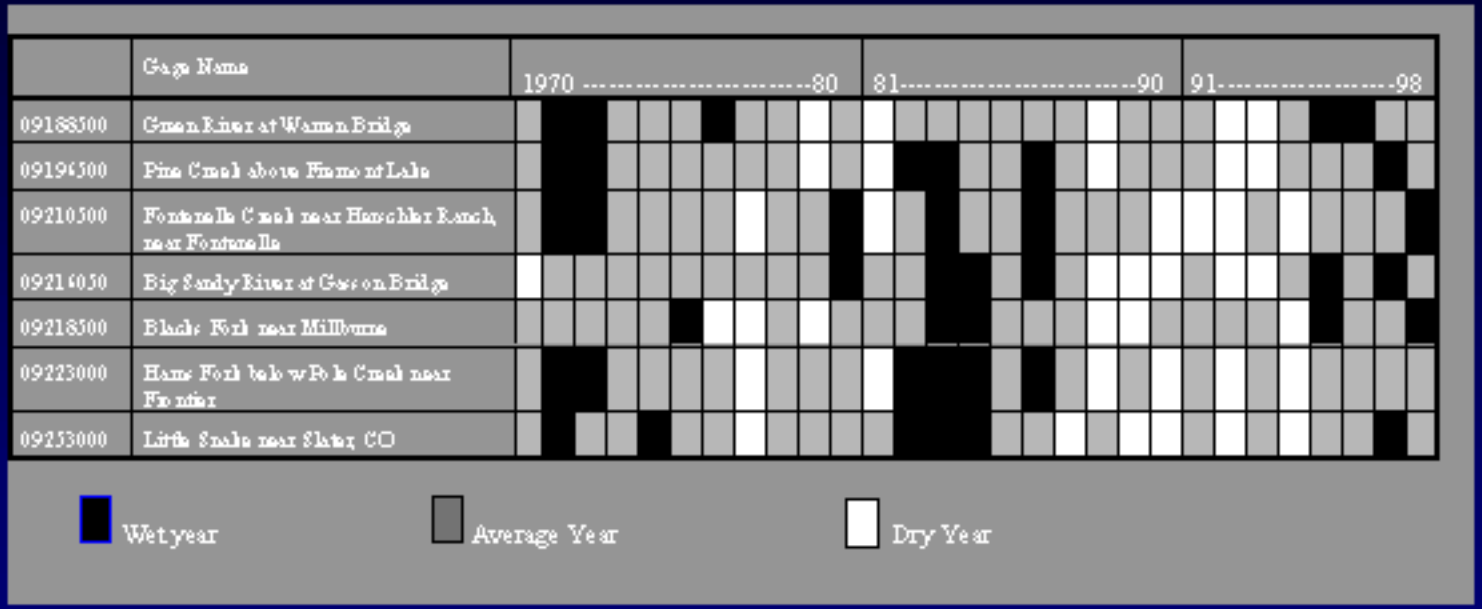
Annual Flow
Green River at Warren Bridge



Index Gages

- Complete record 1970-1998
- Least affected by man
- Gages selected
  - Green River at Warren Bridge
  - Pine Creek above Fremont Lake
  - Fontenelle Creek near Herschler Ranch
  - Big Sandy River at Gasson Bridge
  - Blacks Fork near Millburne
  - Hams Fork below Pole Creek near Frontier
  - Little Snake near Slater, CO

Wet, Average and Dry Years for Green River Basin Index Gages



Green River Basin Index Gages