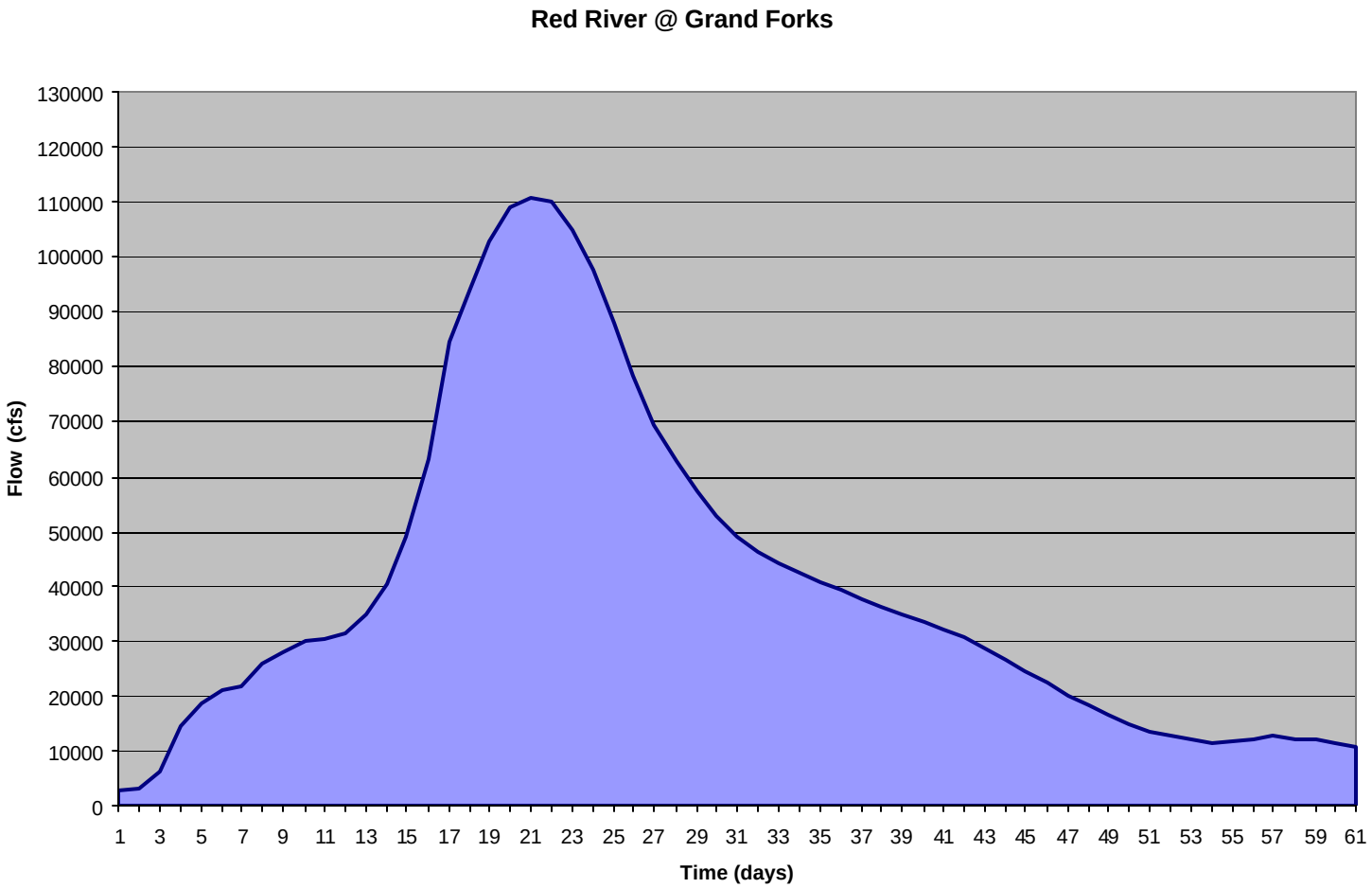
Red River Mainstem Modeling



Modify the flood Hydrograph

Red River Basin Land & Water
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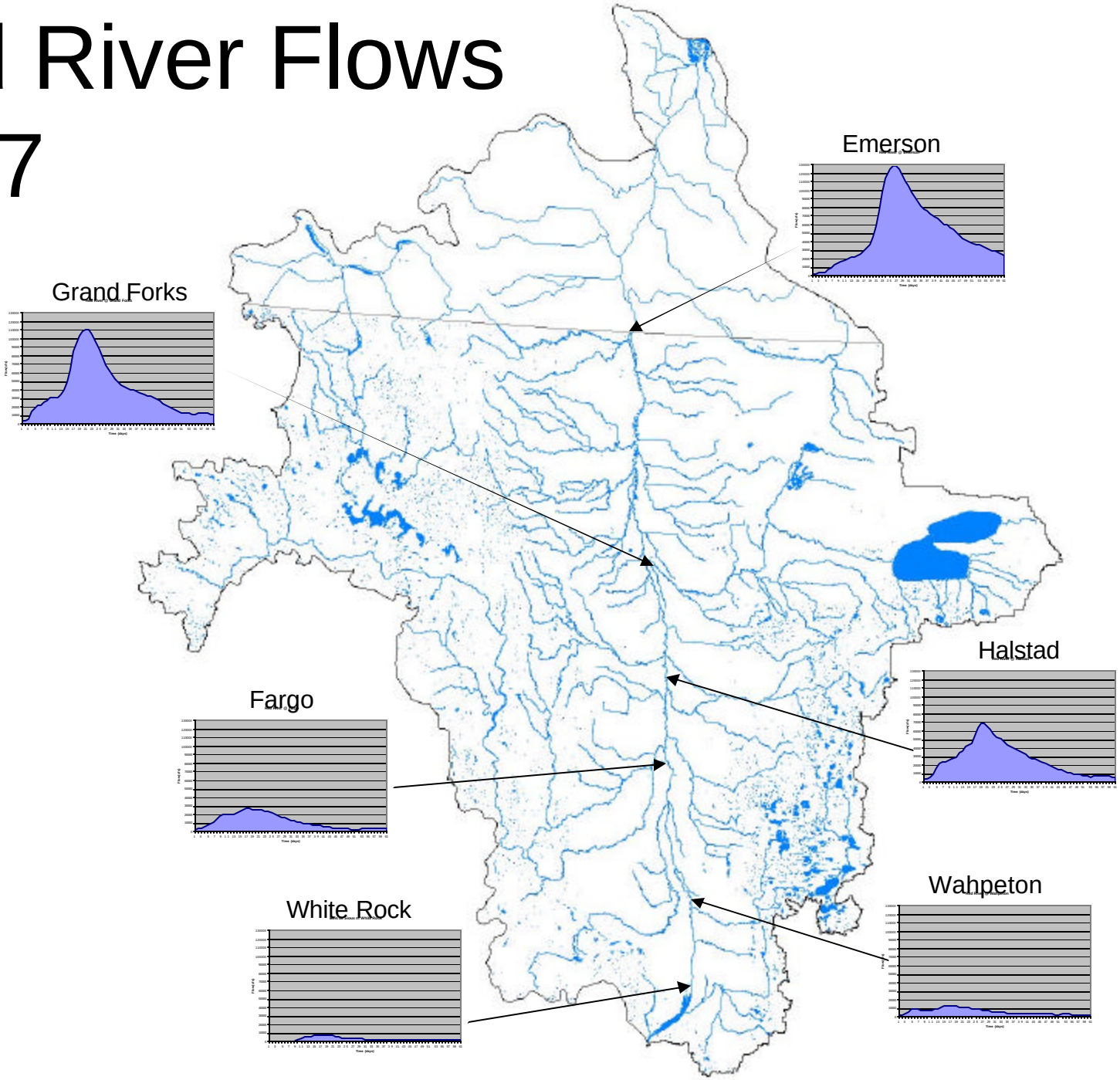
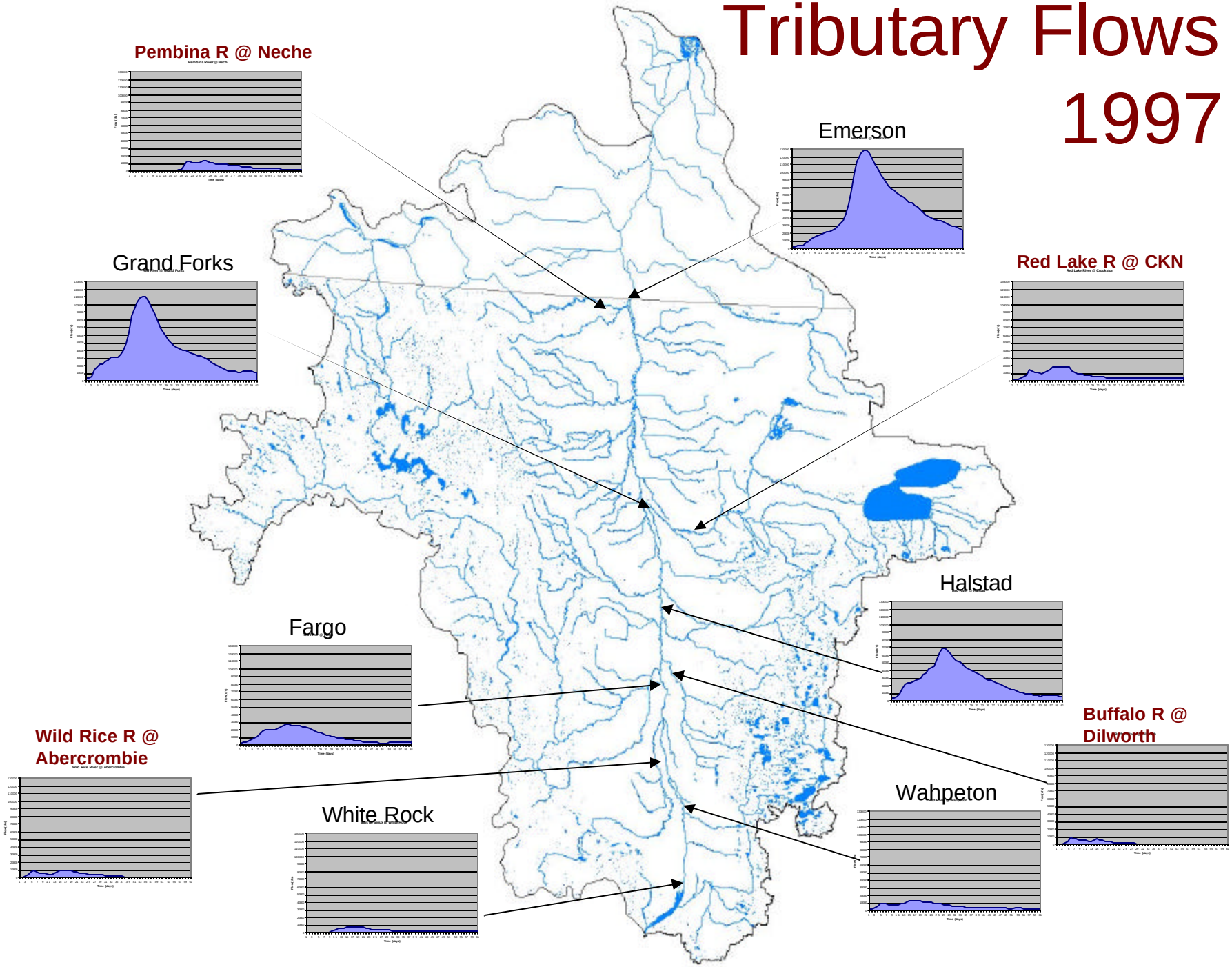
Charles Anderson, P.E.

JOR ENGINEERING

Red River Flows 1997



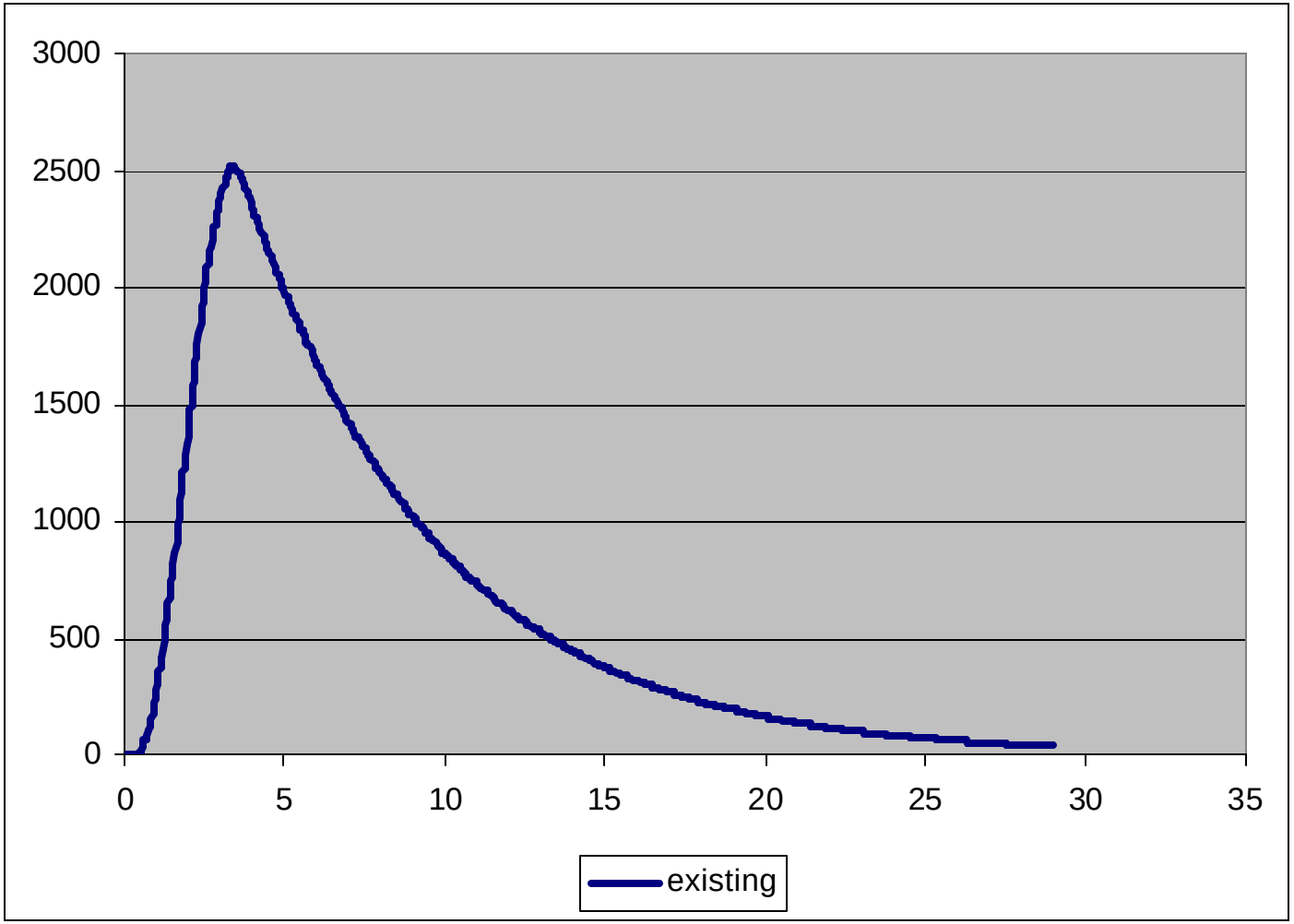
Tributary Flows 1997



The primary purpose of the Main Stem Model is to help predict the downstream effect of changes made upstream

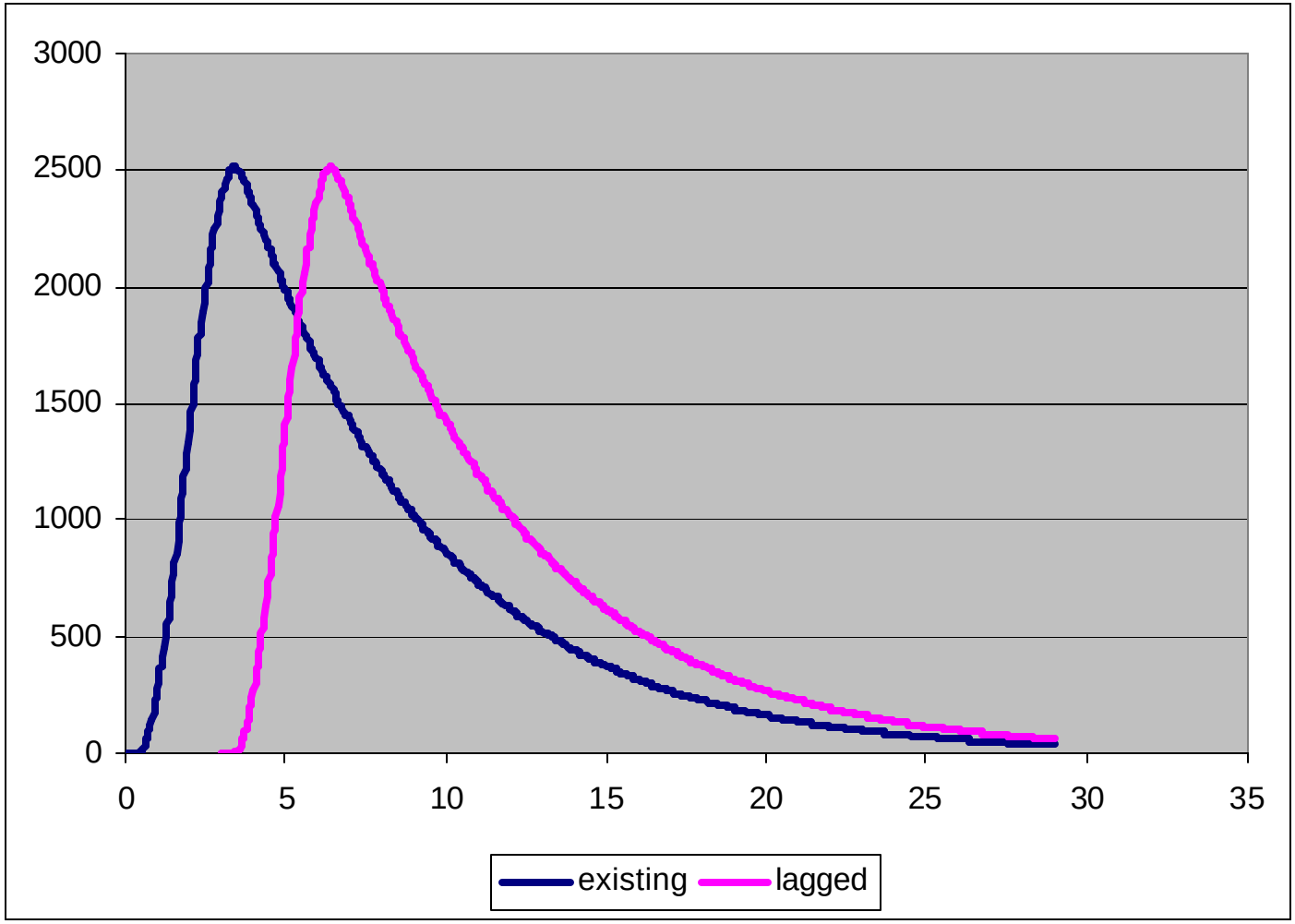
- Tributary inflows to the mainstem model will be altered
- The effect will appear as a change in the downstream hydrograph

Example Tributary Flood Hydrograph



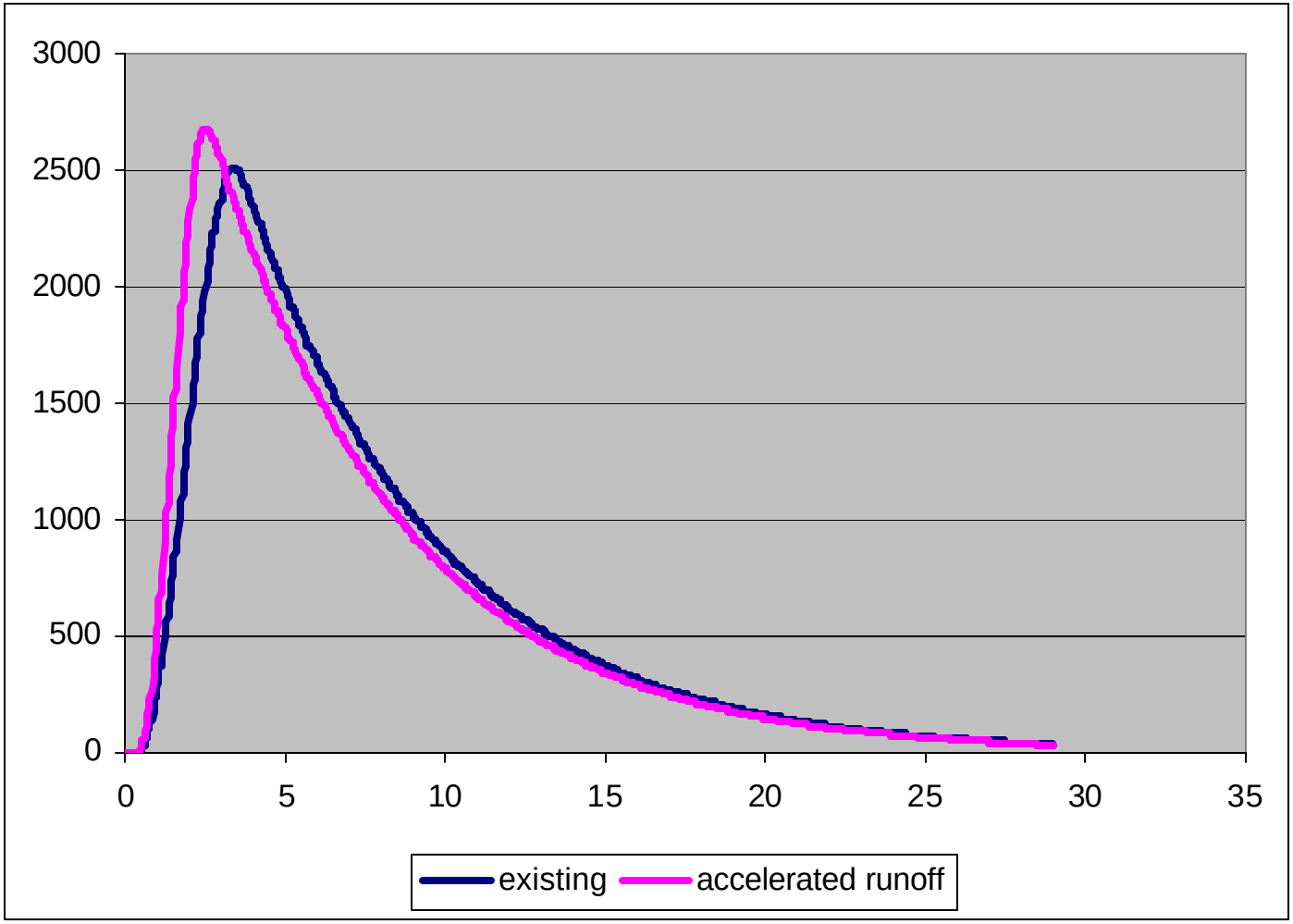
Removing the inflow hydrograph would show the tributary's existing downstream effect

Lagged Hydrograph



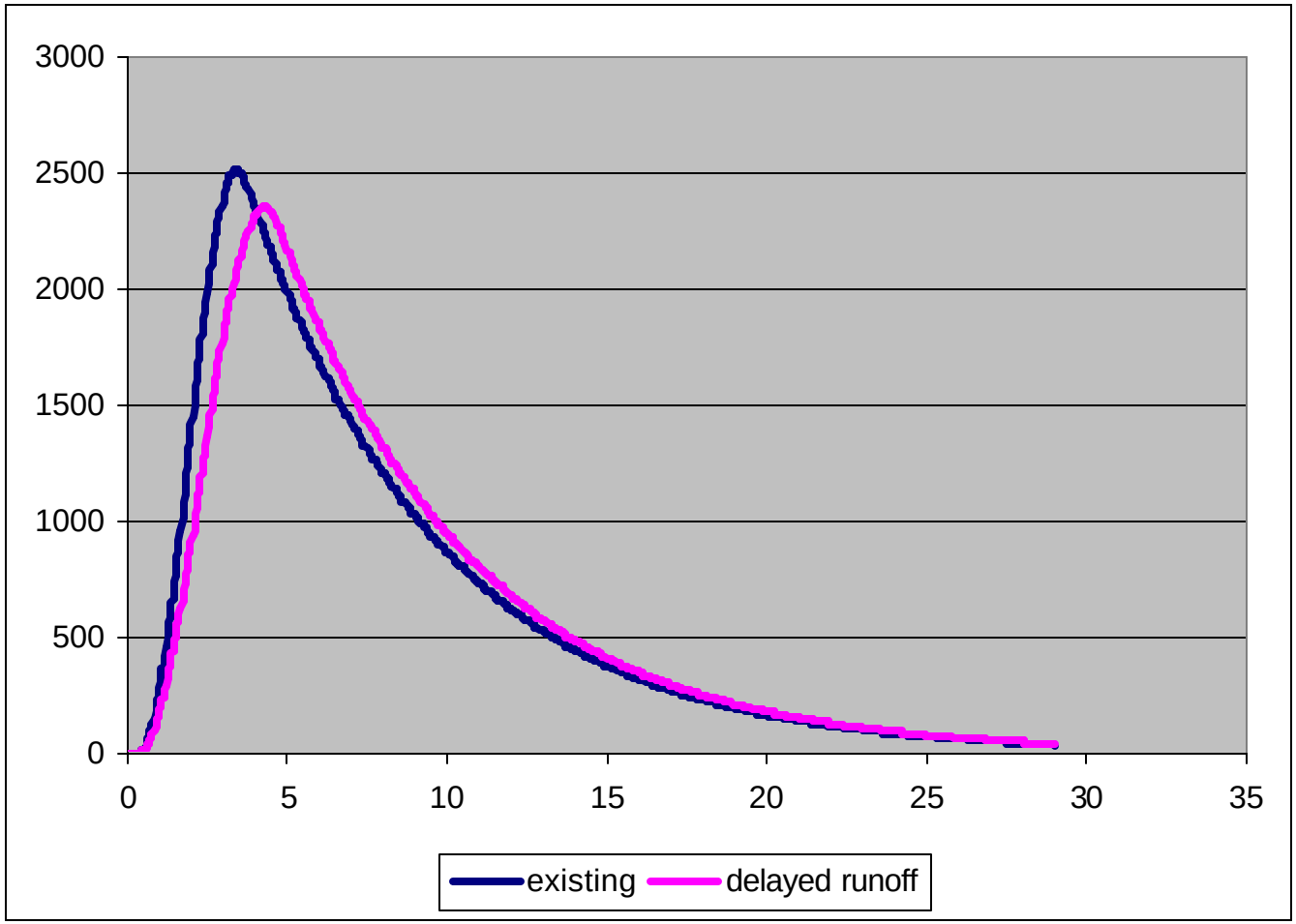
This may represent climatic variability

Accelerated Runoff



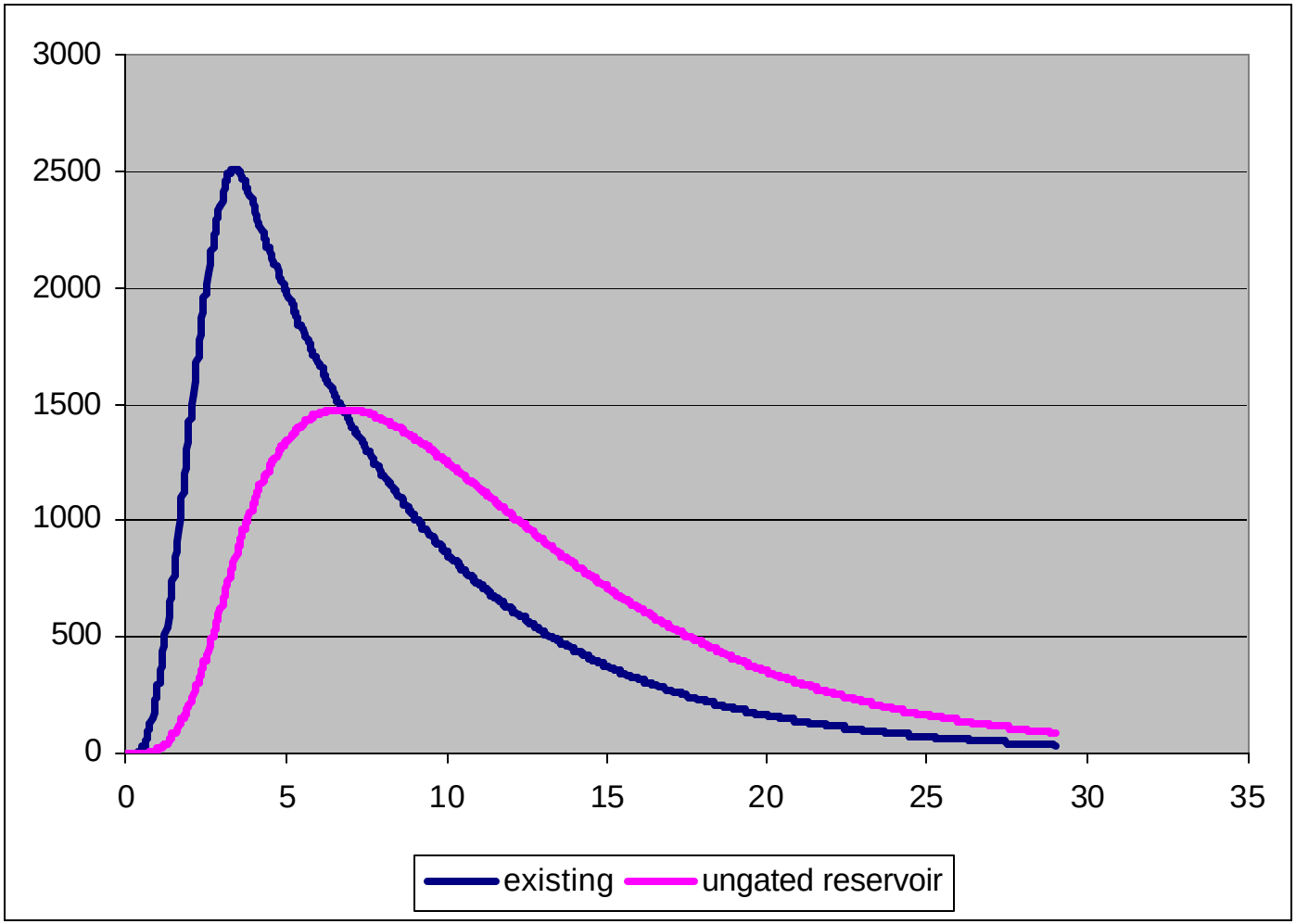
This might represent improved drainage

Delayed Runoff

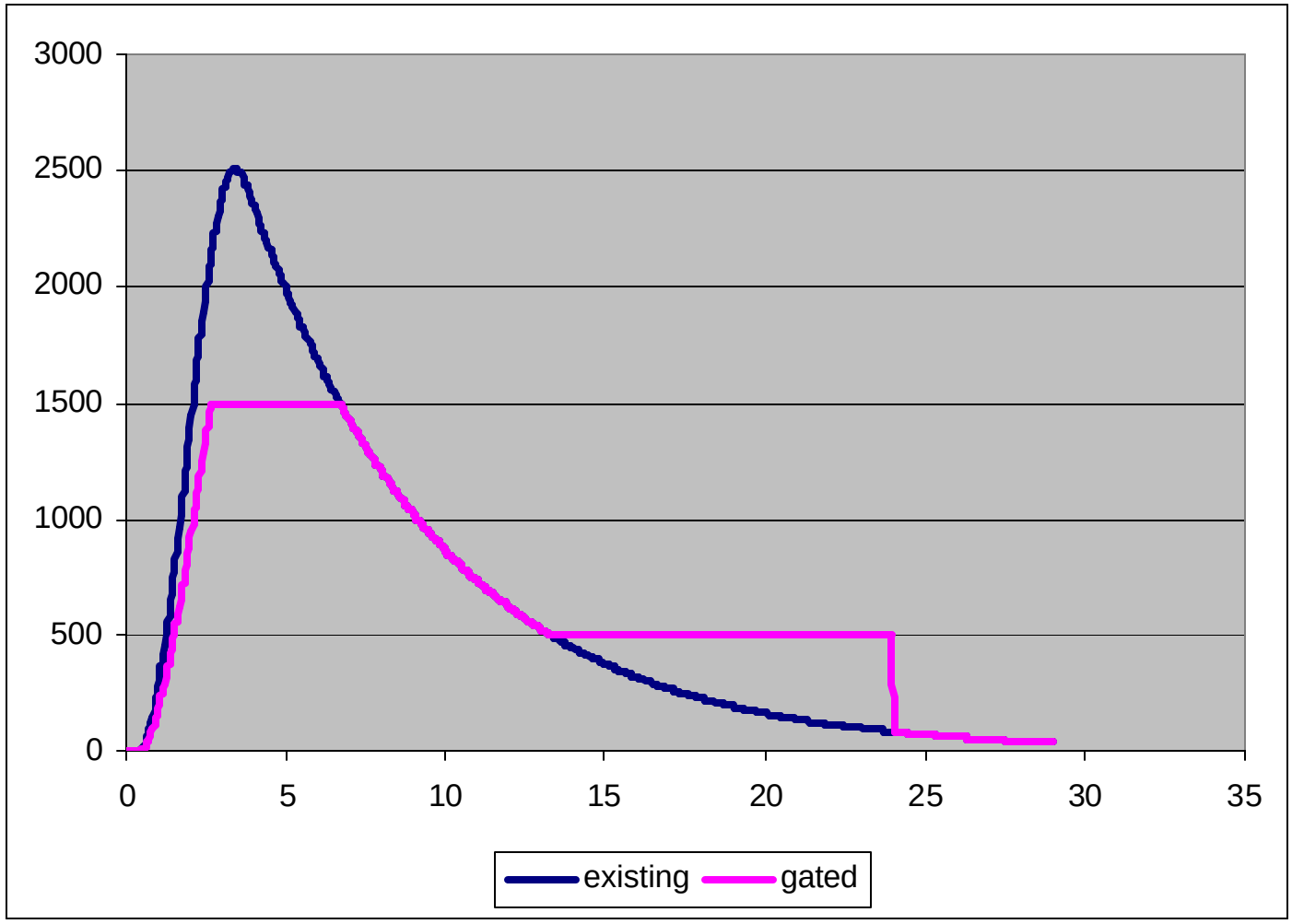


This might represent retarded drainage

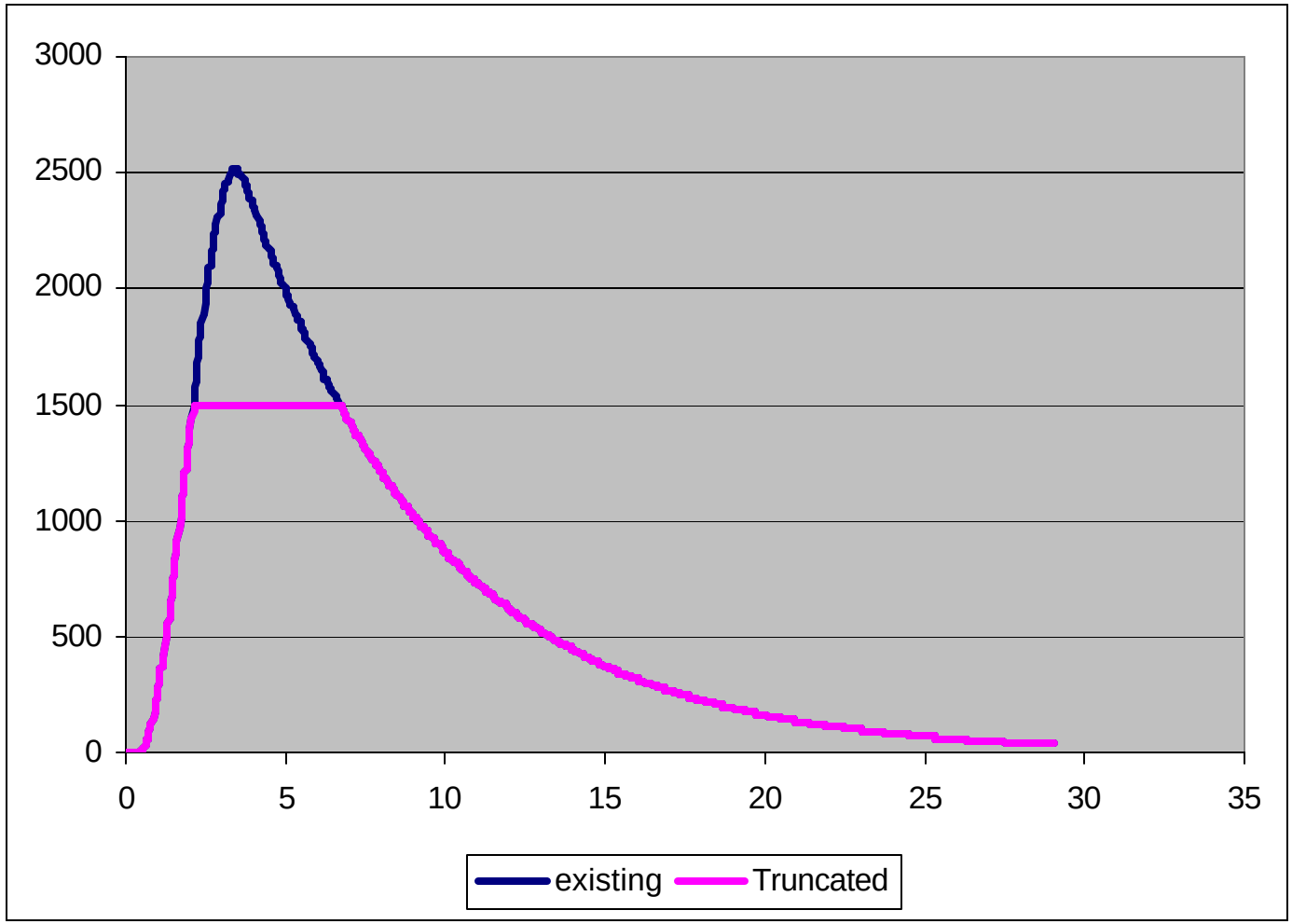
Ungated Storage Reservoir



Gated Reservoir



Truncated Hydrograph



This might represent off-channel storage with only high flows diverted

The goal of the modeling effort is to find feasible ways to reduce main stem flood flows

- Identify what is needed in different areas of the watershed and help set tributary goals
- Evaluate the effect of proposed projects
- Evaluate the cumulative effects of a combination of projects throughout the Red River Basin

Modeled effect on the Red River