

Central Valley hydrology study: Study product uses

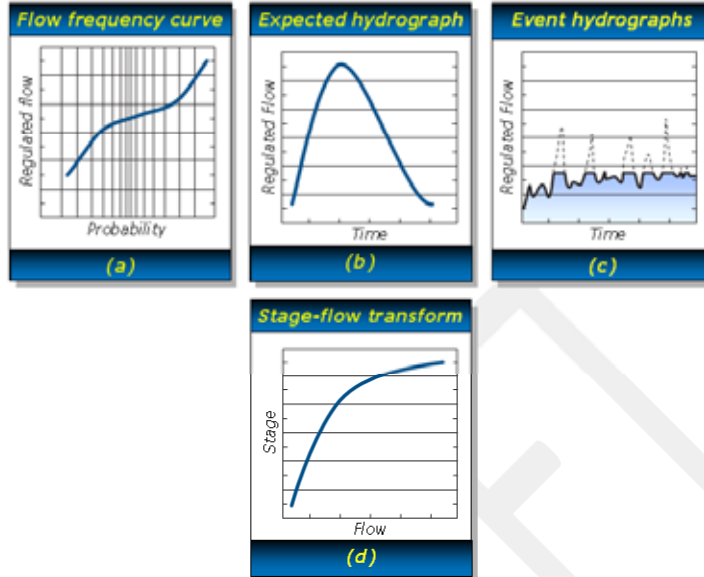
Mitch Russo, P.E., CA Department of Water Resources
Brad Moore, P.E., U.S. Army Corps of Engineers
Nathan Pingel, P.E., David Ford Consulting Engineers

Oct 27, 2009

Overview of discussion

- Study products
- Review of study procedures
- Description of potential uses

Products (useful for mapping)



Sacramento-San Joaquin watershed



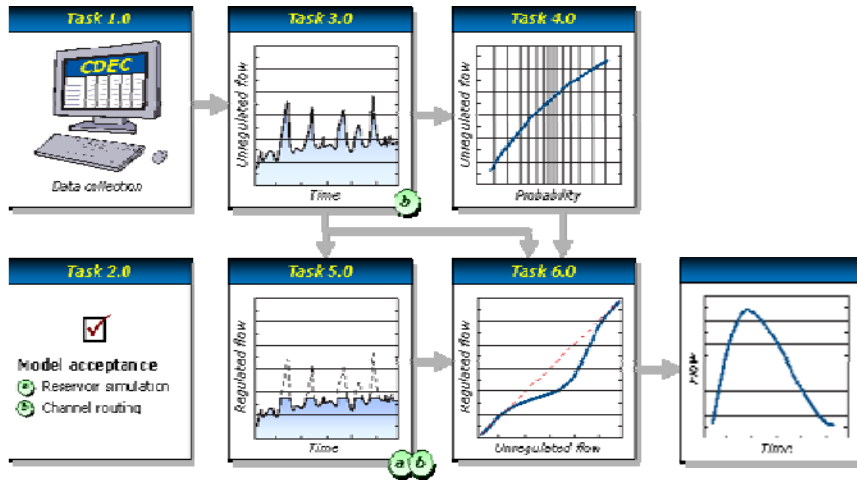
Sacramento River

- At Rio Vista = 27,000 sq mi
- 37 reservoirs

San Joaquin River

- At Mokelumne River = 20,000 sq mi
- 36 reservoirs

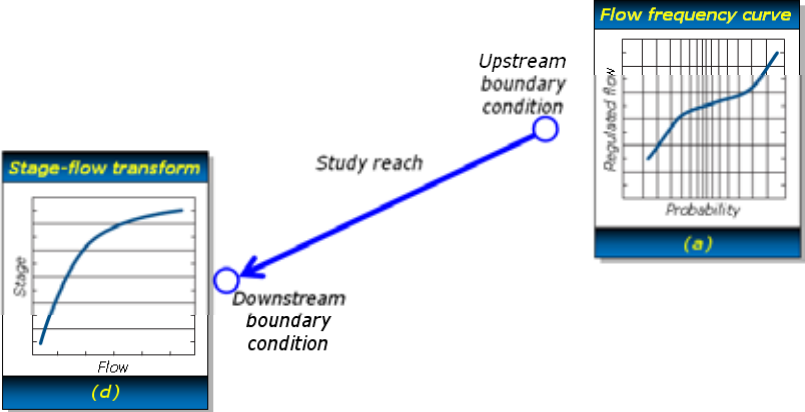
Analysis procedure



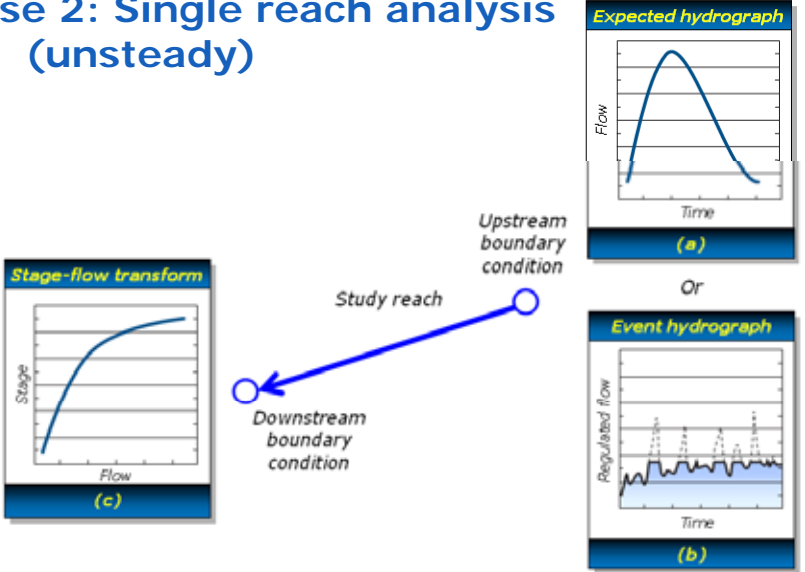
Example uses of CVHS products

	Use 1	Use 2	Use 3	Use 4
Purpose of hydraulic analysis	Steady, single reach	Unsteady, single reach	Unsteady, multi-reach	Unsteady, multi-reach
Compute water surface profile of specified AEP	X	X		
Delineate floodplain of specified AEP given levee breach		X	X	
System wide alternatives analysis				X

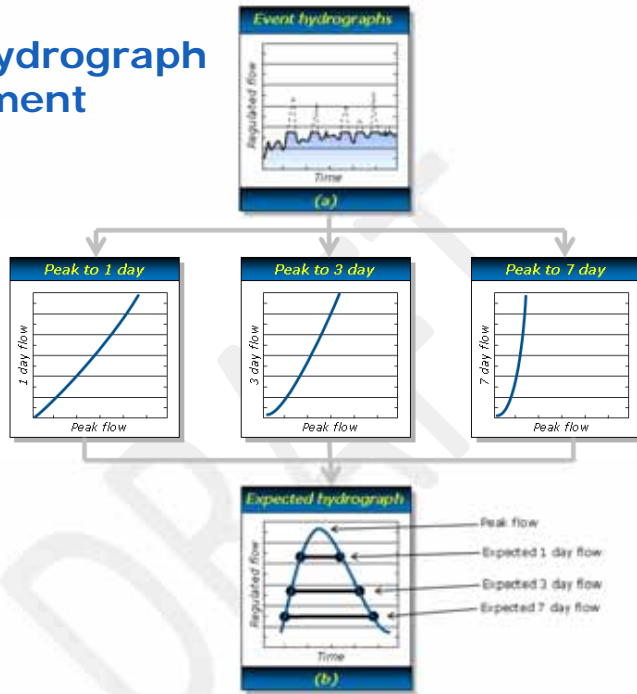
Use 1: Single reach analysis (steady)



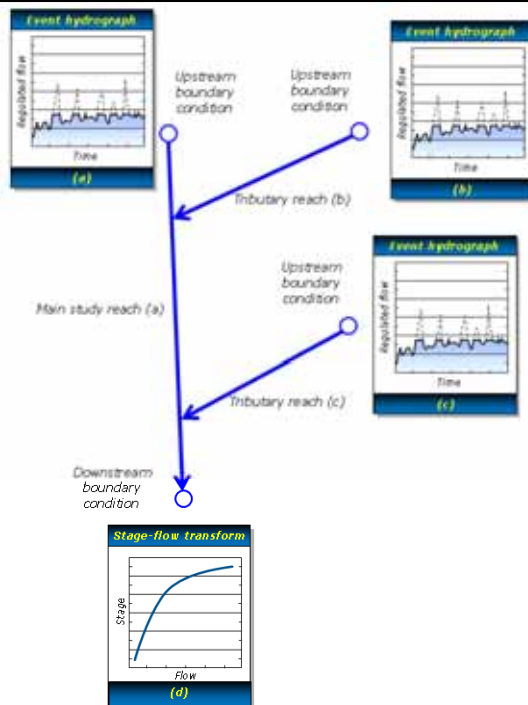
Use 2: Single reach analysis (unsteady)



Expected hydrograph development

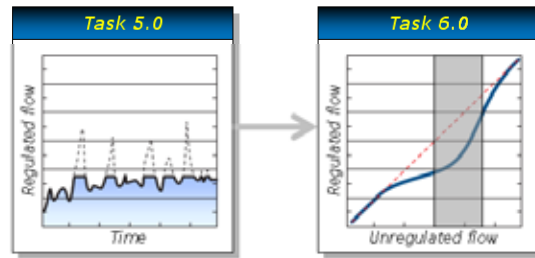


Use 3: Multi-reach scenario analysis

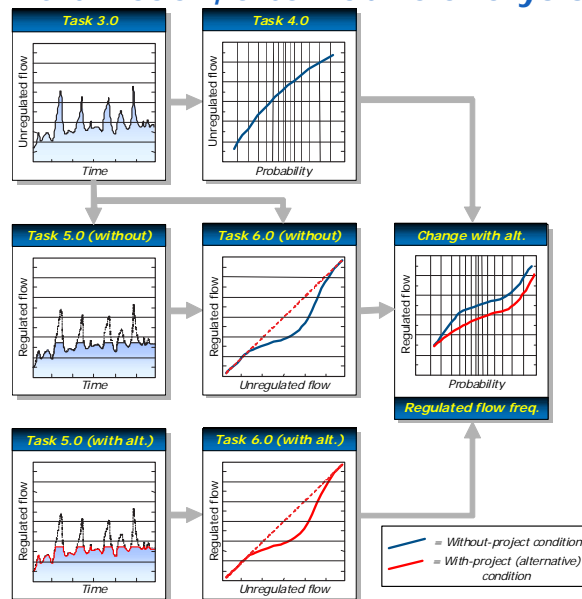


Use 4: Multi-reach, alternative analysis

- Must develop with-project frequency curve at each index point
- Re-simulate the regulated time series with alternative in place
- Examples:
 - New reservoir = change in unregulated-regulated flow transform
 - Levee setback = change in unregulated-regulated flow transform and stage-flow transform



Use 4: Multi-reach, alternative analysis



Example uses of CVHS products

	Use 1	Use 2	Use 3	Use 4
Purpose of hydraulic analysis	Steady, single reach	Unsteady, single reach	Unsteady, multi-reach	Unsteady, multi-reach
Compute water surface profile of specified AEP	X	X		
Delineate floodplain of specified AEP given levee breach		X	X	
System wide alternatives analysis				X

CVHS Product Milestone Dates

- July, 2010 – Complete unregulated flow time series
- December, 2010 – Adopt flow-frequency curves
- February, 2011 – Develop regulated flow time series
- August, 2011 – Develop unregulated/regulated flow-transform curves
- September, 2011 – Develop stage-flow transforms
- November, 2011 – Develop expected hydrographs