Use Category	Scale	Use Case	Data Type	Benefits	Limitations
Ecological Monitoring	Single system/Regional Analysis	Studying the impact of streamflow changes on aquatic ecosystems	Empirical flow data (USGS, CDEC)	Fine resolution for modeling, provides hourly or daily flow data for a specific system, Fine resolution is critical for biological conditions modeling	Availability and coverage varies by system, there are data gaps on some streams (data gaps make it challenging for regional analysis)
Ecological Monitoring	Single system/Regional Analysis	Analyzing long-term trends in streamflow data to understand the effects of climate change on aquatic ecosystems.	Empirical flow data (USGS, CDEC)	Fine resolution for modeling, provides hourly or daily flow data for a specific system, Fine resolution is critical for biological conditions modeling	Availability and coverage varies by system, there are data gaps on some streams (data gaps make it challenging for regional analysis)
Ecological Monitoring	Regional analysis	Analyzing long-term trends in streamflow data to understand the effects of climate change on aquatic ecosystems.	CalSim and SacWam	Full coverage of system and no data gaps because it is modeled data, Can utilize different operations simulations to see how that changes ecosystem dynamics, Provides additional information on deliveries	Monthly timestep is limiting, misses critical flow events that may drive population dynamics
Ecological Monitoring	Single system	Hydraulic modeling for planning restoration project	Empirical flow data (USGS, CDEC)	Fine resolution for modeling, provides hourly or daily flow data for a specific system, may be important to plan how a project would react to different restoration scenarios	Availability and coverage varies by system, there are data gaps on some streams
Ecological Monitoring	Single system	Hydraulic modeling for planning restoration project	CalSim and SacWam	Can utilize different operations simulations to see how that changes flow dynamics	Monthly timestep is limiting, misses critical flow events that may have an important impact on hydraulic modeling
Water Resource Management	Regional analysis	Assessing water availability for agriculture, urban use, and ecosystems.	Empirical flow data (USGS, CDEC)		Empirical data describes current conditions, it does not allow for testing various operations
Water Resource Management	Regional analysis	Assessing water availability for agriculture, urban use, and ecosystems.	CalSim and SacWam	Built for testing various operations scenarios	Only avaliable for certain scenarios, High level of effort and expertise to model additional operations scenarios