

Draft

## WATER SUPPLY PROBLEMS

The problems of water supply associated with the Bay-Delta system can be divided into three basic categories: conflict among beneficial uses, economic impact, and Water Quality (Water Quality Problems are described separately). If there were no conflict among competing beneficial uses, only hydrology would constrain exports or out-of-stream uses. The identified problems can be measured in two ways: adequacy of supply and predictability of supply. In turn, shortfalls or uncertainty are manifest in economic impacts.

The adequacy of a supply is the degree to which supply and demand are matched. There is a mismatch between Bay-Delta water supply quantities and current demand patterns. Mismatches between supply and demand generally cause problems, both for water users and the environment. The predictability of a supply is the degree to which we can accurately predict supply or supply patterns in the future. Unpredictable supplies cause problems because they increase the likelihood that we will either overinvest in water supply (e.g., build unnecessary storage), under invest in production (e.g., plant too few acres) or suffer unacceptable shortages.

In turn, problems with adequacy and predictability can be viewed from either planning or operational perspectives. An operational perspective looks at current water conditions and tries to project water supply patterns in the short-term (days, weeks, months, possibly years). A planning perspective does not look at current conditions, but attempts to define the water supply patterns that can be expected in the future over the long-term.

Finally, different end users use water differently. What is a problem for one user may not be a problem for another user. Thus, the various users of water must be considered separately. For example, urban and agricultural water users want supplies which are relatively consistent, year after year. By contrast, the environment requires variations in flows from year to year. Too many high flow or low flow years are undesirable.