

EZMAN Heads for the Hills

Randall Brown, DWR

Jim Arthur's last day with the U.S. Bureau of Reclamation was March 31. Jim began working in the estuary in the early 1970s after stints investigating the feasibility of removing nitrogen from San Joaquin Valley subsurface and later being part of an ecological assessment team for what is now the U.S. Environmental Protection Agency. I have known, worked with, and walked across countless miles of the Sierra with Jim since 1967.

Soon after beginning work in the Bay/Delta, Jim and Doug Ball (also of USBR) observed that sediment, phytoplankton, and other suspended particles were often at higher concentrations in Suisun Bay than either upstream or downstream. They proposed physical and biological mechanisms to explain the observed peak concentrations of suspended material and coined the term "entrapment zone". They spent long hours in the field and laboratory obtaining measurements to help determine if their proposed mechanisms could be validated. Jim and Doug co-authored several reports documenting their observations.

Recent data have demonstrated that the mechanisms originally proposed by Jim and Doug do not entirely explain the observed peak concentrations of suspended sediment and planktonic organisms. It must be remembered, however, that they began their estuarine studies during a time when many physical modelers were treating Suisun Bay as a completely mixed system. Their original conclusions about the importance of 2-layer flow were controversial. We have made considerable advances in our understanding of this important area of the estuary, and Jim was one of the pioneers in developing this understanding.

Jim did not just work on the entrapment zone. Over the years, he has sponsored and participated in projects to determine the role of residence time on phytoplankton in the delta, to test the use of continuous samplers to collect ichthyoplankton, and to collect salinity/temperature/turbidity data using state-of-art CTDs. During the last few years he worked especially hard, and successfully, to integrate water quality/phytoplankton/zooplankton sampling from one vessel. He led the charge to install more fixed, multiparameter monitoring sites in the delta and to consolidate and upgrade many of the DWR/USBR salinity monitoring sites.

To demonstrate Jim's importance to USBR, it appears that they are recruiting three people to replace him. The Interagency Program will miss him. We could always count on him for ideas, proposals, and explanations. We hope he will find time between traveling and working around the house to drop by or call to help keep the program on track.

Status and Trends

Introduction

Randall Brown, DWR

This is the second annual status and trends issue of the Interagency Program *Newsletter*. We hope you will find it to be a handy and useful reference when looking for information on a variety of species and environmental parameters associated with the Sacramento/San Joaquin estuary.

Knowledge of the status and trends in abundance of key species and their supporting foodwebs is an essential component of Central Valley and estuarine restoration activities. Over the next several years the CALFED Bay/Delta Program, the Central Valley Project Improvement Act, Category III from the 1994 Bay/Delta Accord and other programs will be developing projects to "fix the Delta" and its watershed. An integral component of these programs is a yardstick by which success

can be measured. Although this brief summary is not intended to be the definitive measuring tool, it can provide a general sense of how well the system is doing.

The species and parameters covered are expected to vary somewhat from year to year. The CALFED Bay/Delta Program will be publishing its own list of indicators in the near future and, as appropriate, the status of some of these indicators may be included in future issues. We are also looking for feedback from agency staff and stakeholders on species or key parameters that are missing or ones that are included but don't seem that important.

Feedback can be either to me directly or to any of the coordinators or management team members. rbrown@water.ca.gov; 916/227-7531 voice; 916/227-7554 fax.

Water Year 1996 In Review

Maury Roos, DWR

After a very wet 1995, water year 1996 got off to an extremely dry start. By the first week of December, we wondered if the drought had resumed and some very pessimistic forecasts were being made. Seasonal precipitation in the northern Sierra was only 6 percent of average.

Then the rains began. The three big rainy season months — December, January, and February — were all well above average. By March 1, 1996, statewide precipitation was 115 percent of average, the snowpack water content was average, runoff was 120 percent of average, and the forecasted snowmelt runoff was about average. It appeared that 1996 was going to be one of those rare near-normal runoff years.

The water supply picture did not change much during March and April. Statewide precipitation during March was about 90 percent and April was above average at 130 percent. The May 1 forecasts called for about 115 percent of average water year runoff. Since reservoir storage stood at 120 percent of average, partly as a result of excellent carryover from the wet 1995, water supply prospects were very good.

May started out with warm weather, which accelerated the snowmelt. Then we got a surprise about mid-month when a Pacific storm brought heavy rain to northern and central California, some three times the normal May

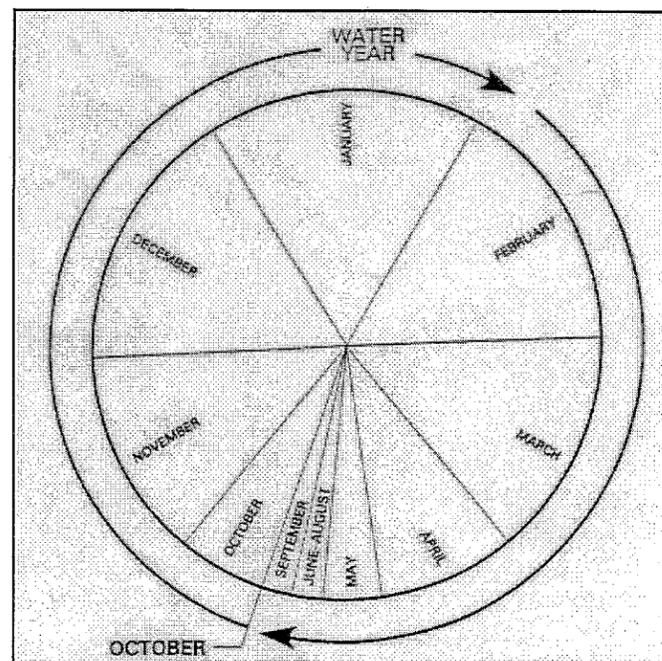
average. The storm produced runoff more nearly comparable to a March storm, requiring flood control releases at most major Sierra foothill reservoirs. There was some overflow into the Yolo Bypass during the third week of May. Major Central Valley rivers were higher than normal, causing some crop loss on adjoining lands. The storm boosted April-July runoff about 20 percent in the Sacramento River region and about 10 percent in the San Joaquin River region. Eventually, April-July runoff turned out to be about 125 percent of average statewide.

The rest of the water year was uneventful, except for some very hot weather during the summer. Water year runoff was nearly 125 percent of average compared to 180 percent in 1995. Statewide precipitation was about 110 percent (less than average in the south, which was on the fringe of the drought of the American southwest), and reservoir storage ended at 120 percent of average, ensuring some carryover for the next water year. Sacramento River unimpaired runoff was estimated to be 22.2 million acre-feet, which placed the year in the "wet" category for delta water quality. Runoff for the four major rivers of the San Joaquin River region was about 7.3 million acre-feet, which also classified that system as wet.

Beginning of Water Year 1997

Water year 1997 did not start unusually. Most of October was dry, but one significant storm during the last week of the month was unseasonably heavy in the Central and South Coast regions and across the San Joaquin Valley. Northern Sierra precipitation was about 80 percent of average for the month.

Weather patterns seemed to change during the last half of November, with precipitation and runoff slightly over average. The wet pattern continued into December. By Christmas, northern Sierra precipitation for December was twice average, with a dry holiday week indicated by the long-range weather forecasting models. But the break in precipitation was short lived. During the week from December 26 through January 2, Northern California was clobbered by one of the biggest floods of this century. The major rivers of the Sierra Nevada, from the Sacramento River at Shasta Dam to the Kings River east of Fresno, generated record or near-record flood peaks and 3-day volumes of runoff. About 40 percent of an average water year total rainfall deluged the mountain watersheds.



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