

4.3 – Watershed Studies

4.31) Watershed Sampling

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INTRODUCTION

The Sequoia watershed program was established in 1983 as a long-term cooperative study of anthropogenic effects on Sierran ecosystems. The SEKI program was designed to collect a set of core baseline measurements on surface water chemistry, vegetation dynamics, precipitation inputs, meteorology, and soil mapping. Initially, the SEKI program focused exclusively on sites along an elevation gradient in the Middle Fork drainage of the Kaweah River. In 1990, the Tharp's watershed was burned as a pilot study to determine the effects of fire on biogeochemical and hydrologic processes in a mixed-conifer forest. Coinciding with the start of the Mineral King Risk Reduction Project in 1995, the SEKI watershed program expanded its efforts to determine the effects of fire on stream chemistry and hydrology. Two first order watershed sites were established in the East Fork drainage and sampling was initiated in the East Fork at Lookout Point.

In 2000, the watershed program was temporarily halted due to lack of funds. All stream sampling, flow measurements and meteorological data collection ceased in May 2000 and all equipment was removed from the field.

The 1999 Watershed Report provides detailed information on watershed findings to date including post-fire changes in hydrology as observed in Tharp's Creek, preliminary findings in pre-burn stream chemistry in the East Fork sites, and results from the large woody debris survey conducted in the East Fork sites.

METHODS

The watershed research program has followed the original watershed study protocol, developed by the NPS Water Resources Division in 1982, to study key aspects of the hydrological and biogeochemical cycles. This holistic approach has produced an 18year data set in which the variability in watershed processes is now being reviewed for a monograph publication summarizing the Sequoia NP watershed program.

2000 WORK

Sampling continued in all study watersheds though May 2000 at which time all field equipment was removed, catalogued and stored for future watershed sampling. All watershed staff was terminated in June 2000. In October, USGS contracts were awarded to Claudette Moore and James Sickman to continue data analysis for incorporation into the watershed monograph. Limited stream sampling and flow monitoring was re-established in September by SEKI Resources Management staff and volunteers to maintain continuity in the East Fork drainage.

PLANS FOR 2001

Plans for graduate student Andi Heard of Colorado State University are in the works to continue with the original proposal to monitor post-fire stream chemistry changes in the East Fork watersheds. Future

watershed work conducted in Sequoia will likely be initiated and managed by the SEKI Resources Management Division.