ADEQ BIOCRITERIA PROGRAM **May 1, 2001**
REFERENCE SITE SELECTION PROCESS

For initial reference site selection, bioassessment staff verified reference site conditions at 100 sites prior to sampling in the spring of 1992. Since then new sampling sites have been evaluated individually during site visits. Field reconnaissance consists of taking physicochemical water measurements, visual based habitat measurements, noting riparian condition, noting any potential land use impacts to the site, and collecting a sample for field identification and calculation of the FHBI or HBI. We began a "Targeted Watershed Approach" to ambient monitoring in 2000 and thus have been monitoring old and identifying new reference sites in two basins per year, covering all basins during a five-year cycle. New reference site data will be incorporated into the warm and cold water reference conditions and the Indexes of Biological Integrity at the end of the five-year period.

1. Identify potential reference sites
   a. Regional coverage of perennial waters statewide
   b. Distributed among all major river basins
   c. Literature sources (e.g. Wild and Scenic Rivers report)
   d. Survey state and federal environmental professionals for potential reference sites

2. Criteria for initial site selection
   a. Accessible (within a 2-hour walk or 3-4 mi from nearest 4WD road)
   b. >0.5 km downstream of road crossings
   c. No known discharges upstream
   d. No major impoundments upstream
   e. No channel alterations at the site
   f. Least impacted by land use activities

3. Field assessment of potential reference sites
   The overall condition was determined using the physical, chemical and land use information. The condition is confirmed using the FHBI score for the macroinvertebrate community.
   a. Site should be truly perennial (indicators: fish, univoltine insects, riparian indicators)
   b. Site should be free of local land use impacts
   c. Site should be free of channel alterations
   d. No violations of pH or dissolved oxygen water quality standards