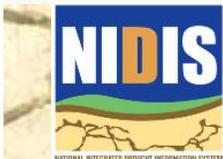
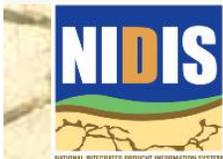


**Results from previous federal
discussion of drought information
needs, resources, and priorities in
California, September 23, 2010
Planning Meeting**



List of existing drought information activities and drought information needs in California #1

- Regional scale hydrological modeling to look at the state of California and water availability, driving forces for habitat changes, and incorporate climate change into this work.
- Better use of groundwater during drought (better understanding of conjunctive use of surface and groundwater), how does drought increase groundwater use and what are implications to subsidence, sea water intrusion, etc.
- The role of the Delta in creating water supply issues (both natural and regulatory), how can NIDIS reduce conflict surrounding the Delta issues.
- Better ways of quantifying low flows.
- USACE has some flexibility with their flood control diagrams but not as much as USBR would like.
- Water demand information on how agriculture, municipal demands will change in the future.
- Characterize drought in CA because the US Drought Monitor (USDM) does not. Mostly the USDM is good at showing dry land farming effects, which is a small aspect of agriculture in CA.



List of existing drought information activities and drought information needs in California #2

- Water demand information that is easy to access. Need to access data sets that are climate relevant, unified data formats that can be incorporated into a modeling framework.
- Urban water management plans (e.g. southern CA) are required to demonstrate water authorities can provide water in a drought regime (through a drought plan). Need more realistic scenarios than just 1988 or 1987 as severe droughts of record.
- High-resolution streamflow models and affects on fisheries.
- Better information about water demand, water availability needs by sector (when does a sector become stressed because of a lack of water availability).
- Climate forecasts for flood in the fall for emergency management preparedness.
- Winter water supply climate forecasts
- Provide information for growers and water districts to use for irrigation scheduling.
- Focus on critical time for ag decions: April/May.

List of existing drought information activities and drought information needs in California #3

- Growers want to know what their allocation will be based on expected conditions (forecast comes through USBR from DWR). The earlier the inflow forecast the better (start in Feb. go to May). Deliveries are based on the 90% exceedence value, which is quite conservative.
- Understanding of anomalies (wind, precip, temp) that will significantly affect the snowpack.
- Improved forecasts to estimate how much snow is above monitoring networks
- Better forecasts of water demand season such temperature during growing season would help inform farmers making decisions about what crops to grow.
- Crop type affects demand and seasonal outlooks would help understand what demand might look like.
- Indicators for estimating what Delta inflow given reduced Delta input will affect southern CA water supply.
- Water quality information, not just flow but how flow affect water quality.
- Spectrum of monthly, biweekly, weekly and daily streamflow forecast plus trend
- Better SWE or snow information in general, late season snow course information

List of existing drought information activities and drought information needs in California #4

- Probabilistic information to improve reservoir operations (more than just the 5 bins or scenarios (water year types) that are currently used: dry-warm, cold-wet, etc).
- Information that provide better certainty or reliability on getting their water.
- Good forecast on flow for August/September would be helpful
- A long range water supply forecast (>5yrs)
- Better data or placement of monitoring sites in better locations
- Improved communicating, analysis and integration of data
- Need better understanding of what groundwater indicators or data represent
- Accurate precipitation data is critical
- Larger scale monitoring schemes for better intercomparisons
- More groundwater monitoring wells (influenced by climate only). Currently only have two for the whole state.
- Impact of drought on affected riparian communities
- Stream temperature gages at each stream gage
- PET-AET for information on what's going on with plant stress



List of existing drought information activities and drought information needs in California #5

- Radiation as an extremely important variable that is currently not quantified well.
- How frequency, intensity, duration of drought may change in the future
- Water budget data in one location, or integration of the water budget data
- Enhanced communication of drought issues to policy makers
- Better predictions of when ongoing drought will end
- Improved characterization of urban water demand issues and definition of drought in a state that moves water to the extent CA does.

Selection criteria for possible Pilot Drought Early Warning Information System Projects

- Operational and Useful
- Information bottleneck
- National importance
- Institutional bottleneck
- Storage-rich
- Fish
- Local commitment and support
- Sustainability
- Existing resources
- Complex but feasible
- Different from other pilots
- Generalizable lessons
- Issues of plumbed systems
- Agriculture
- Wildfire
- Energy
- Political clout
- Underserved populations, communities
- Water quality connection
- Snow/rain influences
- Tourism and recreation
- Transboundary contrasts
- Population affected
- Potential impacts
- Time feasible
- Problem-directed education and communication opportunities



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Potential areas to focus a NIDIS Pilot Drought Early Warning Information System in California Projects

- **Southern California – urban:** very different than any of the existing NIDIS Pilot Drought Early Warning Information System activities but also very different than the other areas of focus.
- **North Bay Counties:** an opportunity to work across agriculture, fish, storage, and significant existing resources
- **Central Valley:** too big and potentially not tractable with NIDIS insertion into the process risking a lack of impact – focus on Sacramento Valley linked to Sierra Nevada
- **Klamath*:** high potential for impact from improved drought information but also too big and potentially not tractable

