Calsim-III Hydrology Development Group

MEETING NOTES

September 15, 2004 (Wednesday)
9:30pm - 12:30pm
Resources Building, Rm 1142

Agenda

1. Introductions (Kadir/Brekke)
2. Depletion Study Areas (Schreiner/Kadir)
3. Detailed Analysis Units (Cervantes, Scruggs, Hillaire)
4. Groundwater Basins Bulletin-118 (Niblack)
5. Proposed "Water Management Areas" (Bourez/Draper)
6. Topographically Defined Units (Matanga)
7. Setting up agenda/presenters for next meeting (Kadir/Brekke)
    a. Criteria for selecting new areas
    b. Feasibility of migrating to new areas
    c. Models impacted by new areas
    d. Others
8. Closure

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1. Introductions

- Distributed 9/1/04 Meeting Notes

2. Depletion Study Areas

Schreiner:

- Provided **Handout**
    - *"Recollections by Price Schreiner (DWR – Retired Annuitant) on the Origin of the Depletion Study Areas"*
- Discussed DSA origins (1965-67)
- Area boundaries driven by drainage understanding
- Area resolution driven by
    - Outflow points, although not all DSAs are gaged
    - computational limitations
        - E.g., led to aggregation of proposed areas into some DSAs as we know them now
- Discussed analysis issues for
    - DSA 59 (Eastside Streams, re: distinguishing between Calaveras and Mokelumne groups)
    - DSA 49 (San Joaquin)

- DSA 12 (West Mid-Sac Valley; re: how shortages are met in the depletion analysis, either through additional canal imports or increased GW pumping; Schreiner suspected that the simulated shortages were being driven by incorrect land use projections)
- DSA 60 (Tulare Basin; re: area boundary confusion concerning Westlands northern boundary)

Kadir:

- Purpose of DSAs:
  - used for estimating water supplies for a region for planning studies
- Caviats:
  - DSA60 doesn't affect CVP/SWP hydrology development
  - DSA49 has been split into DSA49A, 49B, 49C, and 49D (from CVGSM), but we have not been using them; The latest modification to DSA49 has been MBK's hydrology redevelopment for 49A-49C.
- How the DSAs have been used:
  - Calculate the whole-area demand and try to meet it with a mix of local SW, GW, or imports
  - Calculate area accretions

3. Detailed Analysis Units

Cervantes:

- Provided **Handouts**
  - "The Development of Boundaries for Hydrologic Studies for the Sacramento Valley Region"
  - Northern District's water budget parameters, DAU template
  - Maps
    - DAU boundaries with country boundary overlay
    - Valley Floor source-of-supply with district boundary overlay
- DAU boundary selection
  - Based on drainage areas and political boundaries, positioned to take advantage of gage locations

Hillaire:

- **Slides Presentation**
  - DAU resolution set in the 1970s, and computational limitations were a factor (similar to DSA sizing in the 1960s)
  - Gages do not always get used to check water budgets (e.g., Central District)
  - When used, gages are sometimes used to cross-check against the aggregate outflow from multiple DAUs

    - DAUs were subjectively set up against Water District boundaries, which change.
    - Districts compute water budgets for either DAU or DAU-by-county regions.
- Issues looking forward:
    - budget area boundaries should be stable through time;
        - topographic definitions meet this criteria;
        - political definitions are susceptible to corporate boundary changes
    - basin water movement between multiple DAUs or water districts spanning multiple DAUs creates analysis difficulty

4. Groundwater Basins Bulletin-118

Niblack:

- **Slides Presentation**
    - The Central Valley basin matches the outer boundary of the DAU-aggregate
    - Central Valley sub-basin boundaries are political/hydrologic
    - Why were they developed?
        - Collect data, assist resource management, track WQ, conjunctive use analyses,
        - requests made by CA legislature on issues of hydrologic units, GW yield, water budgets, well production
    - How are they used
        - Local resource management (AB3030)
    - Who gets impacted if these boundaries are changed?
        - No answer.
    - How do might these areas factor into CALSIM III hydrology development?
        - Areas could serve as budget areas for CVGSM3 development

5. Proposed "Water Management Areas"

Bourez:

- Provided **Handouts**
    - Depletion Analysis illustration
    - Table of "Land Use fo Revsied CALSIM Hydrologic Areas in Sacramento River Basin"
- Emphasized importance of defining budget areas with clean source-to-demand mapping

    - Operations logic development in CALSIM is handicapped (or unrealistic) if CALSIM's demands do not properly map to surface water sources where operations are modeled.
        - E.g., we use budget areas to convert land use projections into "expected demands with source-splits implied";
        - If the consumption area of a "water management region with a one supply source" is split between two or more budget areas, then we have a data development problem.
- Emphasized that Consumptive Use models should be updated to reflect on-farm efficiencies, etc.
    - District historical water budgets provide the basis for estimating basin efficiencies and other CU model parameters. *Implication:* ideally, the budget areas that support their operations and the budget areas that support CALSIM hydrology development would be either the same or divisible to a common budget element (i.e. smaller than either DAUs or Bourez's proposed WMAs).

6. Topographically Defined Units

Matanga:

- **Slides Presentation**
    - Discussed physically based drainage units, USGS nomenclature, Klamath Basin application
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7. Other Items

Discussed topics for Next Meeting (Thurs 10/7, 9:30am)

- #1) Inventory of Application for the Area Definitions discussed on 9/15
- #2) Criteria for Selecting New Areas
- #3) Feasibility of migrating to new areas
- #4) Models impacted by new areas

Reprint from 9/1/04 Meeting Notes, to be discussed at 10/7 Meeting:

*Rob Leaf suggestions on **types** of selection criteria (9/1/04)*

Attributes of system:
-- Data availability
-- Sources (spatial reach)

-- Ownership
-- Hydrologic constraints (SW/GW etc)
-- Operational/facility constraints

Objective based:
-- Level of detail/resolution required by subsequent models
-- Level of detail/resolution required for analyses (both spatial and temporal - yet to be defined)

Component based:
-- Compatability with other models
-- Backward/forward compatability (forward based upon future model/hydrology development plans - i.e. extensibility)

Process based (note that these are not governing, but need to be considered in staging development over short and long term):
-- Level of effort required for implementation
-- Schedule limitations