CalSim-simulated impacts of proposed NMFS amendment to CVP operations

-- DRAFT --
2017.06.14
Analysis:

• **Two scenarios** represented in CalSim simulations
• No specific logic that guarantees Shasta storage levels
  • Attempt to meet targets by reducing allocations
• Two scenarios:
  • “Current Ops”
  • “NMFS Amendment”
Analysis: Two Scenarios

• “Current Ops”
  • Attempts to replicate shortage allocation approaches taken during recent drought sequence

• “NMFS Amendment”
  • Allows for any shortage allocation necessary, even to extent that Exchange and Settlement Contractors are reduced to 0
    • Not a policy or realistic strategy, but used to test ability to reach targets under any supply condition
  • Shasta-Folsom balance adjusted to promote delivery from Folsom rather than Shasta
Keswick release limits, April – Current Ops

Flow Threshold
- NVFS Proposed Maximum (cfs)

Control
- D1641 X2
- Delta WG
- Flood Pool Mgmt
- Other
- Wilkins Slough NP

Settlement/Project Ag/Refuge Delivery Total upstream of Wilkins Slough (e.g. TCC Control/GC Canals)
(sum(D112,D114,D122A,D122B,D128, D129A))
Shasta Fill Targets, April – Current Ops

- **Wet**
  - Exceedance vs. taf (cubic feet per second)
  - MMFS Proposed

- **Above Normal**
  - Exceedance vs. taf
  - MMFS Proposed

- **Below Normal**
  - Exceedance vs. taf
  - MMFS Proposed

- **Dry**
  - Exceedance vs. taf
  - MMFS Proposed

- **Critical**
  - Exceedance vs. taf
  - MMFS Proposed

Provisional Storage Target:
- **Does not meet**
- **Meets**

Result:
- MMFS Proposed
## Oct-May Sacramento Controls for years not meeting May target version: Adjusted WSI-DI

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June-Sept Sacramento Controls for years not meeting September target

version: Adjusted WSI-DI

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Folsom Storage Results

“Current Ops”
NMFS Amendment
Annual Delta Outflow Exceedences

Total Delta Outflow

MRDO (NDO & X2)

Req’d DO for WQ
(increment above MRDO)

“Current Ops”
NMFS Amendment
Delivery Differences - Example

**Actual deliveries, all years, both scenarios**

Maximum loss: -54 TAF  
Avg Change: -11 TAF

**Differences (NMFS Amendment minus Current Ops) in years where Shasta Sept target is met**

**Exceedance plot of differences for years when Sept target is met**
Delivery Differences: NOD Ag

Maximum loss: -54 TAF
Avg Change: -11 TAF
Delivery Differences: SOD Ag

Maximum loss: -232 TAF
Avg Change: -56 TAF
Delivery Differences: Exchange

Maximum loss: -523 TAF
Avg Change: -57 TAF
Delivery Differences: Settlement

Maximum loss: -28 TAF
Avg Change: 3 TAF
Delivery Differences: NOD M&I

Maximum loss:  -24 TAF
Avg Change:  -6  TAF
Delivery Differences: Friant

- Maximum loss: -381 TAF
- Avg Change: -34 TAF
Delivery Exceedence – Ag and M&I

CVP Ag Service NOD

CVP Ag Service SOD

CVP M&I Service NOD

CVP M&I Service SOD

“Current Ops”  NMFS Amendment
Delivery Exceedence – Refuge, Settlement, Exchange

CVP Refuge NOD

CVP Refuge SOD

CVP Settlement

CVP Exchange

“Current Ops”  NMFS Amendment
Allocation Differences: CVP Ag System

Maximum loss: -0.16
Avg Change: -0.03
Allocation Differences: Exchange

Maximum loss: -0.63
Avg Change: -0.05
Allocation Differences: Settlement

Maximum loss: -0.02
Avg Change: 0.004
Allocation Differences: M&I System

Maximum loss:  -0.16
Avg Change:   -0.03