AQPI

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AQPI Hydromet Observations

• The NWS MADIS system (https://madis.noaa.gov/) is to be the central database for the AQPI system.

• Many observation sites are already ingested to MADIS (CC County shown).

• Coordination efforts are on-going to add other local observations (e.g. Marin County shown)

• Intent is to provide one place to access all data
AQPI Hydro Products

Gap-filling radars and other obs

Flood impact features

Bridge crossings

Coastal flood inundation

Flood frequency level

Soil moisture saturation ratio in near surface (top 40 cm)
AQPI Benefits

- **Overall**
  - Total Wx Benefits ($240M/yr; $34/person)
  - Incremental AQPI Benefits ($62M/yr; $9/person)

- **By Category**
  - Flood Mitigation (61%)
  - Water Supply (23%)
  - Ecosystem Services (8%)
  - Transportation (8% (Ports 6%))

- **Benefit/Cost Estimates**
  - Base Case – 5:1
  - Best Case – 13:1
  - Worst Case - 2:1

- **Efficiency of warning dissemination and respondent reactions.**
  - Efficiency = Frw x Fw x Fc
  - Frw = fraction of the public that receives a warning
  - Fw = fraction of the public that is willing to respond
  - Fc = fraction of the public that knows how to respond
Coupling the National Water Model With A Reservoir System Simulation Model
Russian River Basin Case Study

Fig. NWM-ResSim based on NHDplus channel network, NWM parameters for channel routing, and lake operation parameters.

Natural flows from NWM for Russian River basin

NWM-ResSim Features
1. NHDplus-based channel network which is same as NWM
2. Same routing parameters as NWM
3. Lake Mendocino features from Russian River HEC-ResSim developed by Sonoma County Water Agency (SCWA)
4. Reservoir operation rules: guide curve, diversion, min./max. release, gage-dependent release, etc.

Simulation results:
States of Lake Mendocino-pool, stream flows at each channel segment, etc.

Assessment of assimilation results using the observed (USGS and CDEC)

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