



**2017 East Stanislaus IRWMP Update
PAC Meeting 3: Climate Change**

Presenters:
Leslie Dumas
Lindsey Wilcox

August 28, 2017

Agenda

- Work Completed to Date & Outstanding Action Items
- OPTI and Project Solicitation Questions
- Weighting Factors for Project Scoring
- Climate Change chapter
- Next Steps and Q&A



Work Completed to Date

- Revisit Governance Structure
 - Revised ESRWMP membership
 - Finalized SC and PAC Roles & Responsibilities
- Update IRWMP
 - Following chapters sent to SC/PAC and revised
 - Ch 2 Region Description, Ch 4 Governance, Ch 5 Vision, Goals and Objectives, Ch 6 The Projects
 - Started Project Solicitation Process on 8/7
 - Chapter 3 under way, including Vulnerability Assessment Checklist & GHG Evaluation Sheet



Work Completed to Date, Continued

- Stakeholder Committees & Community Outreach
 - Updated Stakeholder Contact List
 - Finalized Outreach Plan
 - Conducted first Public Workshop
 - Conducted SC Mtgs 1-4 and PAC Mtgs 1-3
- Focused DAC outreach
 - Finalized DAC/NA Memo
 - Called all potential representatives from Stakeholder Contact List (6 total)
 - Spoke with 3 regarding opportunities for participation



Work Completed to Date, Continued

- Update Website and OPTI
 - Updated ESIRWM website
 - Updated OPTI based on revised Project Information Form
 - Prepared and distributed OPTI Quickstart Guide
 - Revised OPTI user profiles and project contacts, as directed by project proponents



Outstanding Action Items

- By 9/8, provide feedback on:
 - Chapter 3 Climate Change
 - Vulnerability Assessment Checklist
 - GHG Evaluation Sheet



Agenda

- Work Completed to Date & Outstanding Action Items
- OPTI and Project Solicitation Questions
- Weighting Factors for Project Scoring
- Climate Change chapter
- Next Steps and Q&A



OPTI and Project Solicitation Questions

- Project solicitation will be from August 7 to September 15
- Any questions?



Agenda

- Work Completed to Date & Outstanding Action Items
- OPTI and Project Solicitation Questions
- Weighting Factors for Project Scoring
- Climate Change chapter
- Next Steps and Q&A



Weighting Factors for Project Scoring

- Additional feedback received from PAC, with some alternate weights proposed
- Discussed proposed weight changes with SC



Agenda

- Work Completed to Date & Outstanding Action Items
- OPTI and Project Solicitation Questions
- Weighting Factors for Project Scoring
- Climate Change chapter
- Next Steps and Q&A



Requirements from 2016 Guidelines

- The IRWMP must address both adaptation to the effect of climate change and mitigation of GHG emissions.
- It must include:
 - Discussion of potential effects of climate change on the region.
 - A list of prioritized climate change vulnerabilities
 - ***new*** Consideration of changes in runoff (timing, quality...)
 - ***new*** Consideration of GHG emissions when choosing between project alternatives – reduce Region’s emissions over a 20-year planning period



SUMMARY OF REGIONAL CLIMATE CHANGE IMPACTS



Climate Change Approach

- Literature review of state-and region-Specific Sources, including:
 - Third Assessment from the California Climate Change Center (Moser et al., 2012)
 - *Hydrologic Response and Watershed Sensitivity to Climate Warming in California's Sierra Nevada* (Null et al., 2010)
 - *Climate Change Handbook for Regional Water Planning* (USEPA and DWR, 2011)
- Summarized literature at a high level
- Determined effects of climate change on Region



Overall Climate Change Impacts

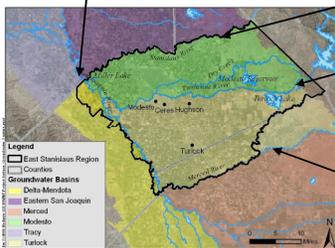
- Warmer temperatures
 - Increased crop water needs
 - Longer growing season
 - Increased power demand (cooling)
- More variable precipitation
 - Increased droughts
 - More severe storm events and flooding
- Decreased snowpack
 - Reduced water supply
- Shifts in timing of precipitation and snowmelt



Climate Change Impacts on Surface Water – Region’s Relation to Rivers

All the Rivers flow to the San Joaquin
River which flows to the Delta

OID relies on
Stanislaus River



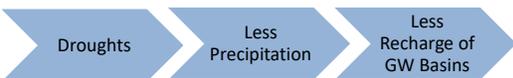
Modesto relies on
Tuolumne River,
purchased
wholesale from
MID. MID and TID
rely on Tuolumne.

Merced Irrigation
District relies on
Merced River



Climate Change Impacts on Groundwater

- Region is underlain by Modesto and Turlock Subbasins of the San Joaquin Valley GW Basin.
- Many cities/agencies/districts depend solely or partly on groundwater as water supply.
- Climate change impacts include more frequent and more severe droughts in the future.



VULNERABILITY EVALUATION



Vulnerability Checklist

- DWR requires a vulnerability evaluation
- New detail added: at a minimum, evaluation must be equivalent to the Climate Change Handbook for Regional Water Planning




Climate Change Vulnerabilities

Vulnerability	Description
Water Demand	Vulnerable to increased ag demands due to longer growing season, increased temperatures and evapotranspiration rates, and more frequent / severe droughts. Vulnerable to increased urban and CII demand due to increased outside temperatures.
Water Supply and Quality	Vulnerable to decreased snowpack in the Sierra Nevada, shifts in timing of seasonal runoff, increased demands creating groundwater overdraft, degraded surface and GW quality resulting from lower flows, a reduction of meadows which can provide contaminant reduction, and more frequent / severe droughts and storm events increasing turbidity in surface supplies.
Flood Management	More severe/flashier storm events and earlier springtime runoff leading to increased flooding, and a reduction of meadows which help reduce floods in the winter.
Hydropower	Vulnerable to increased customer demand combined with changes in timing of seasonal runoff and flashier storm systems affecting reservoir storage.
Ecosystem and Habitat	Vulnerable to decreased snowpack, more frequent/severe droughts and wildfires, shift in seasonal runoff, increased low flow periods and increased water temperatures (degraded water quality).



Prioritized Vulnerabilities

- IRWM Guidelines require that Regions prioritize their vulnerabilities to climate change
- 2013 Plan prioritized as follows:
 - Water Supply/Water Quality
 - Flood Management
 - Secondary priorities (unranked): Ecosystems and Habitat, Water Demand, and Hydropower

Would you like to modify this list?



Other New Requirements

- Include additional detail on **feasibility** of addressing the priority vulnerabilities
- Address adapting to changes in the amount, intensity, timing, quality, and variability of runoff and recharge
- Additional consideration of GHGs in project prioritization



Additional Consideration of GHGs during Project Prioritization

- 2012 GL Requirement: "Provide a process that considers GHG emissions when choosing between project alternatives."
- 2016 Addition: "At a minimum, that process must determine a project's ability to help the IRWM region reduce GHG emissions as new projects are implemented over a 20-year planning horizon and consider energy efficiency and reduction of GHG emissions when choosing between project alternatives."



Addressing Additional Consideration of GHGs during Project Prioritization

- We are addressing this change through the GHG score sheet which was used previously during project prioritization.
- Score sheet instructions will now indicate that GHG emissions should be evaluated in terms of the 20-year planning horizon and regional GHG emission reductions.



Comments on Climate Change Chapter

- Questions or comments?
- Written comments due to RMC by 9/8



Agenda

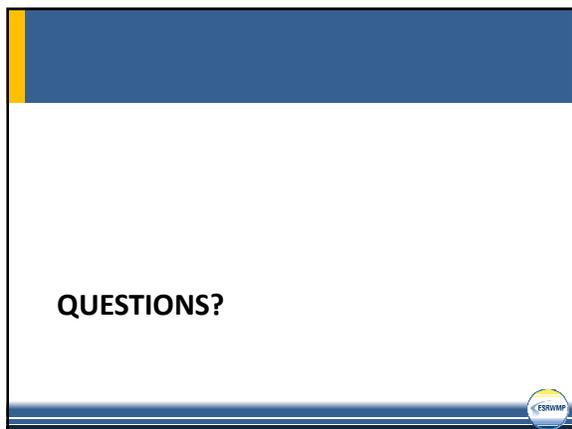
- Work Completed to Date & Outstanding Action Items
- OPTI and Project Solicitation Questions
- Weighting Factors for Project Scoring
- Climate Change chapter
- Next Steps and Q&A



Next Steps

- PAC to:
 - Submit and/or update projects in OPTI
 - Review and provide comments on Chapter 3, Vulnerability Assessment Checklist, and GHG Evaluation Sheet
- RMC to:
 - Revise chapters
 - Respond to OPTI questions and provide tech support
 - Prepare & distribute meeting notes
 - Set-up September meetings (to integrate & prioritize projects)





QUESTIONS?