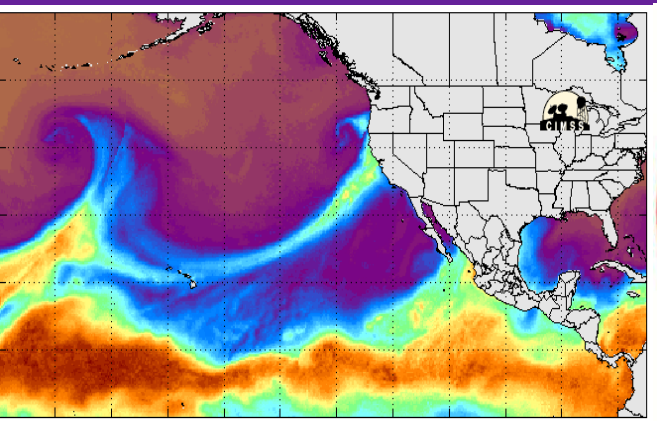
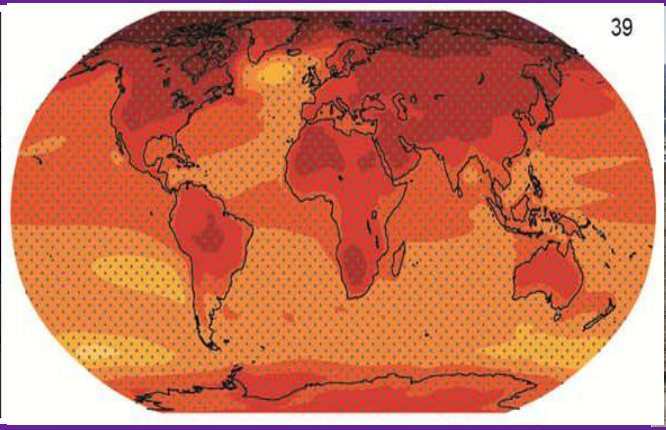
Sonoma County Water Agency – Climate Adaptation Plan Project Overview



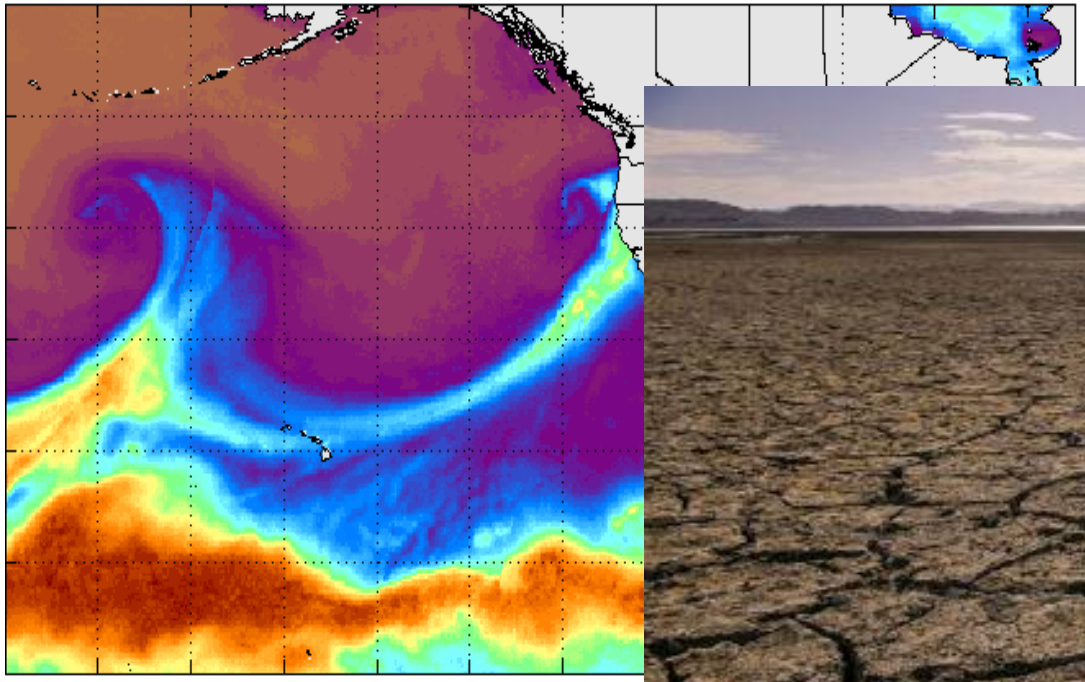


February 3, 2017

North Bay Watershed Association

SONOMA COUNTY WATER AGENCY

ch2m SM




10 Hottest Years Globally
All Since 1998
1.0°F
.5°F
20th Century Average
2003 2006 2007 2012 1998 2009 2005 2013 2010 2014
Columns represent difference from 20th century average.
Data as of September 23, 2015. Subject to change based on NCEI revisions.
Source: NOAA/NCEI
CLIMATE CENTRAL

Background

- Climate-related impacts have already been experienced in the region
- SCWA and other regional entities have invested in improved understanding of climate science and climate-related threats
- SCWA identified the need to evaluate the climate-related vulnerabilities and risks of its systems identify highest priority adaptation
- In 2015, CH2M engaged to develop comprehensive work plan for SCWA climate adaptation efforts – now launching Climate Adaptation Plan

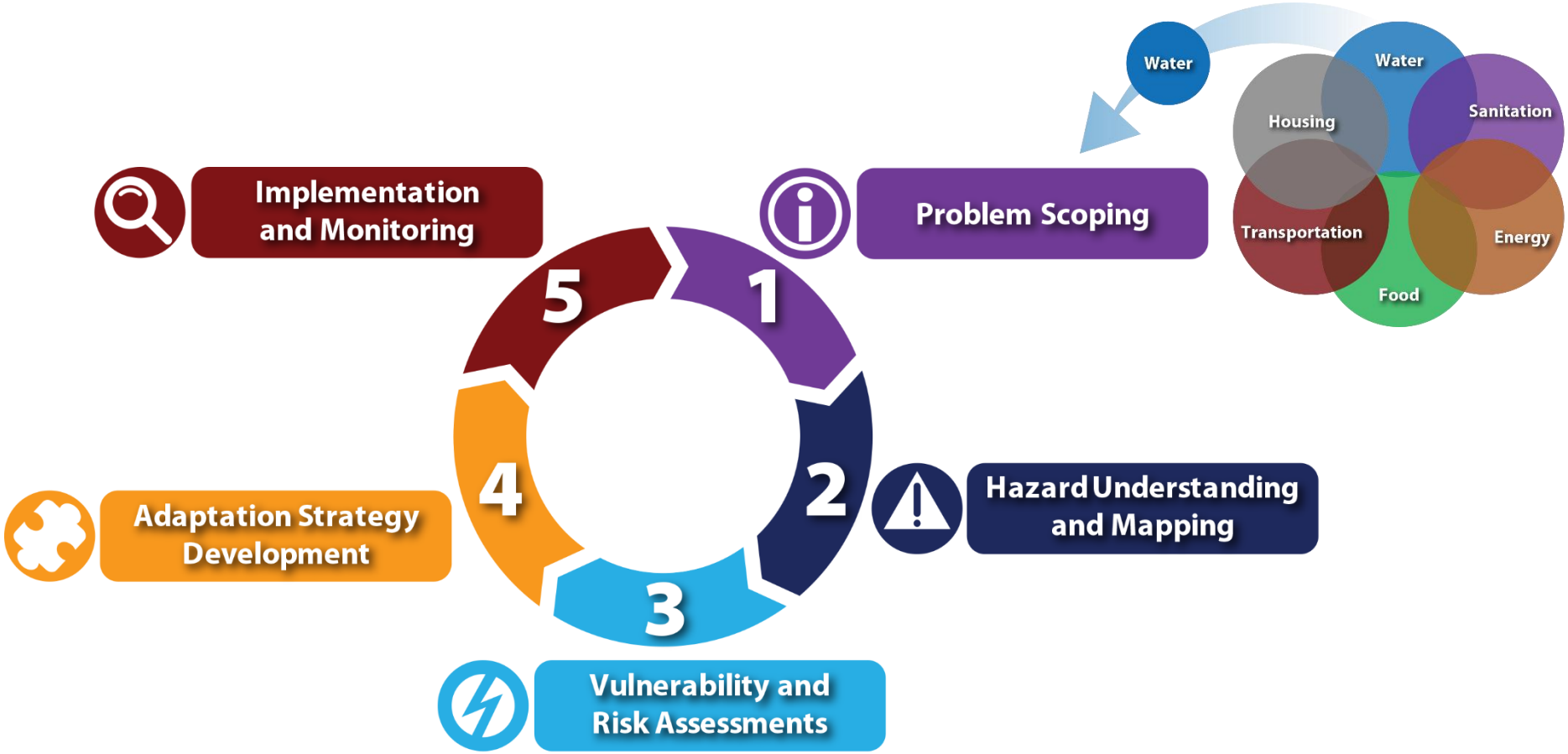
Purpose

Guide SCWA's assessment of climate risks to water supply, sanitation, and flood control infrastructure and operations, and to **serve as a roadmap for developing, evaluating, and implementing adaptation strategies** to improve the resilience of the SCWA systems

Multiple Regional Climate Efforts/Partnerships

	Climate Science	Resiliency Planning	Emissions Reductions	Watershed Strategies	Adaptation Strategies	
RCPA		☑	☑	☑	☑	
NBCAI	☑	☑	☑	☑	☑	☑
Climate Ready Northbay	☑	☑	☑	☑	☑	☑
Pepperwood	☑	☑	☑	☑	☑	
Sonoma Ecology Center			☑	☑	☑	
Sonoma Open Space District				☑		
USGS, SCRIPPS, NOAA, Corps	☑				☑	
Sonoma County Water Agency	☑	☑	☑	☑	☑	☑

Resiliency Planning Framework … one or more systems



CH2M Best Practice for Incorporating Climate Change in Infrastructure Planning, 2015

Hazard Understanding and Mapping

Projected Climatic and Hydrologic Changes for the Region

Temperature

- Increases up to 1.3 – 3.1°C by mid-century
- Increased frequency of temperature extremes (days > 30°C or 86°F)

Sea Level Rise

- MSL increases by 0.1-0.6 m (0.3-2 ft) by mid-century
- Storm surge will cause additional increases

Precipitation

- Extreme precipitation increases (atmospheric rivers) by 15%
- Increased winter, decreased summer precipitation (more variability)

Drought

- Increasing intensity of drought conditions
- Increasing frequency and duration of dry weather conditions

Wildfire

- More frequent and intense wildfires due to warmer temperatures and drier conditions
- Increase in probability wildfires by 15-33%

River Flooding

- Potential increase in AR-driven floods on Russian River
- 100-year flood magnitudes could increase by 10-20%

Risk Assessment

Vulnerability Assessment

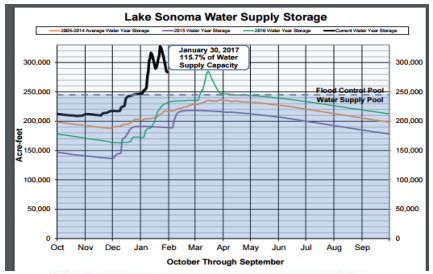
- Develop Performance Metrics and Thresholds
- Develop System Relevant Climate Scenarios
- Perform Qualitative Assessment
- Perform Quantitative Assessment

		Consequence				
		Negligible = 1	Minor = 2	Moderate = 3	Major = 4	Severe = 5
Likelihood	Very Likely = 5	L	M	H	H	H
	Likely = 4	L	M	M	H	H
	Moderate = 3	L	L	M	M	H
	Unlikely = 2	L	L	L	M	M
	Very Unlikely = 1	L	L	L	L	M

Low Risk
Special Case
Moderate Risk
High Risk

Adaptation Measures

Asset Level Adaptations



System Level Adaptations

Operational and Management Policies

Regional Partnerships

Prioritization is Crucial

- Early, Low Regret Actions.
- Long Term, Robust Actions
- Long Term, Contingent Actions.

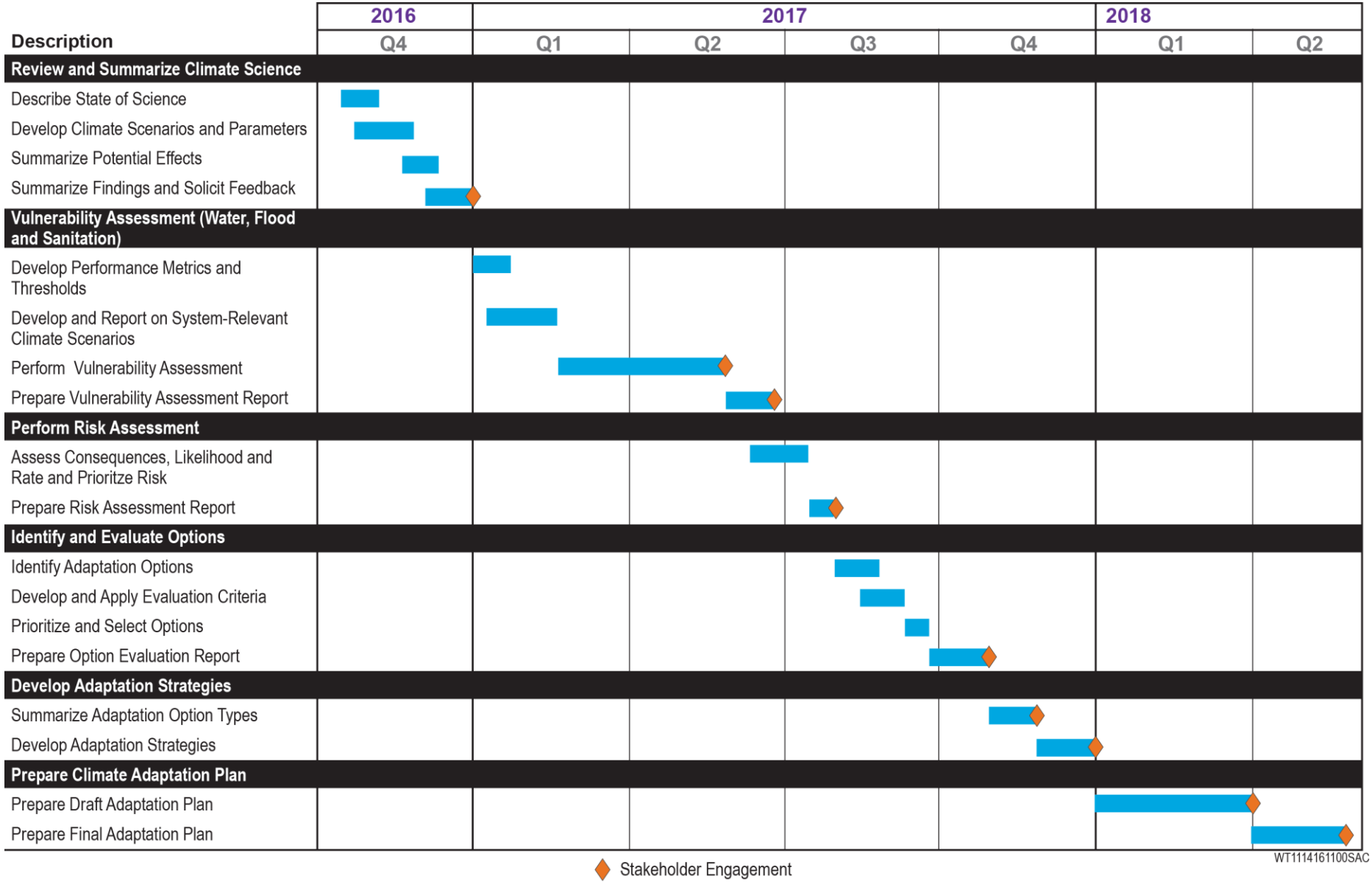
Implementation and Monitoring

Climate Adaptation Plan – Key Elements

- Latest Climate Science
- Adaptation Implementation Strategy
- Monitoring and Update Strategy
- Funding Strategy
- Regional Partnership and Leadership Strategy
- Public Awareness and Outreach Strategy

Anticipated Uses/Desired Outcomes

- **Assist in developing long-range agency strategies and policies**
- **Support the development of prioritized projects**
- **Leverage state and federal funding sources**
- **Provide specific, measurable indicators of climate change**
- **Provide supporting metrics for monitoring climate adaptation measures**
- **Provide a framework for ongoing regional efforts**


2016
2017
2018
Description
Q4
Q1
Q2
Q3
Q4
Q1
Q2
Review and Summarize Climate Science
Describe State of Science
Develop Climate Scenarios and Parameters
Summarize Potential Effects
Summarize Findings and Solicit Feedback
Vulnerability Assessment (Water, Flood and Sanitation)
Develop Performance Metrics and Thresholds
Develop and Report on System-Relevant Climate Scenarios
Perform Vulnerability Assessment
Prepare Vulnerability Assessment Report
Perform Risk Assessment
Assess Consequences, Likelihood and Rate and Prioritze Risk
Prepare Risk Assessment Report
Identify and Evaluate Options
Identify Adaptation Options
Develop and Apply Evaluation Criteria
Prioritize and Select Options
Prepare Option Evaluation Report
Develop Adaptation Strategies
Summarize Adaptation Option Types
Develop Adaptation Strategies
Prepare Climate Adaptation Plan
Prepare Draft Adaptation Plan
Prepare Final Adaptation Plan
Stakeholder Engagement
WT1114161100SAC

Thank you