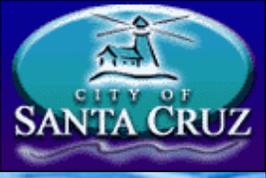




City of Santa Cruz

Water Shortage Contingency Plan

2009 Urban Drought Workshop
March 16, 2009



Presentation Overview

- Background and Purpose of Plan
- Assessing Water Supply and Demand
- Demand Reduction Program
- Implementation
- Water Supply Status and Outlook for 2009

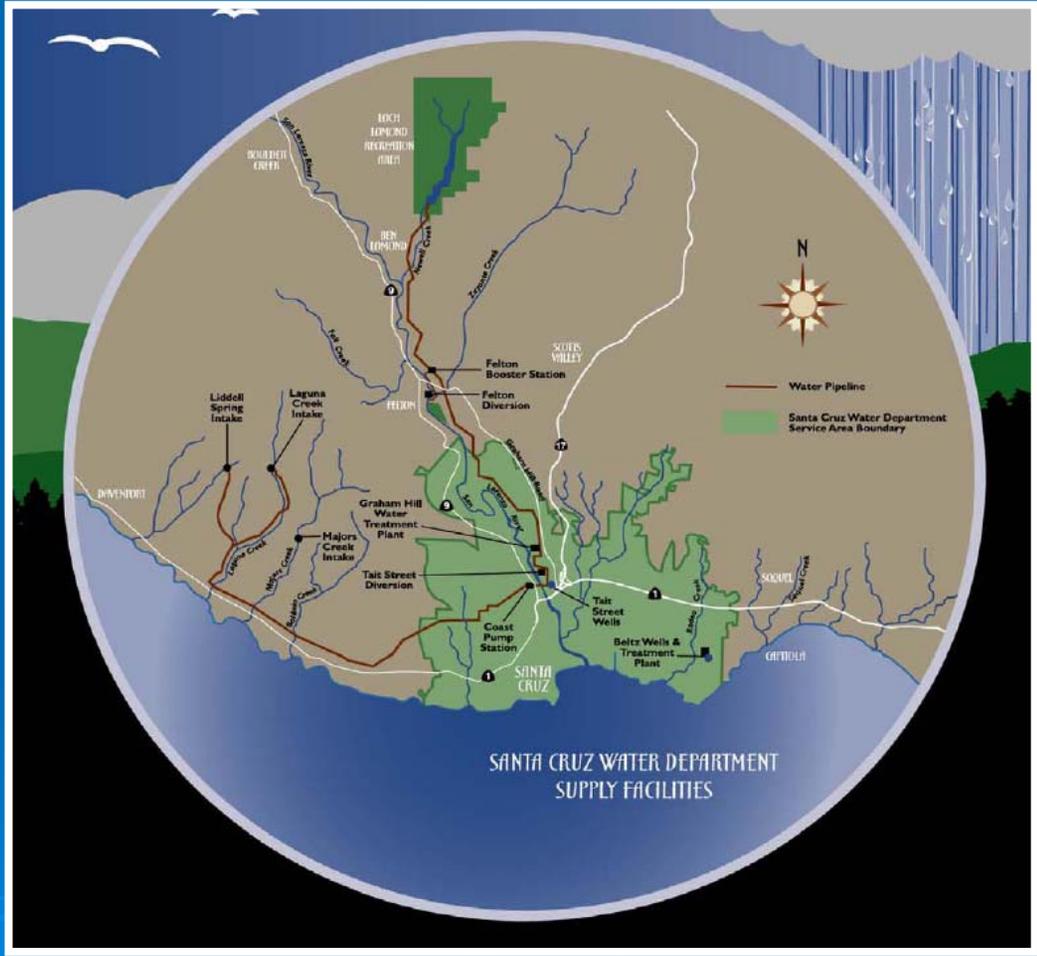


Service Area Characteristics

- Area served:
- Santa Cruz
 - County
 - Capitola

Population:
~ 90,000

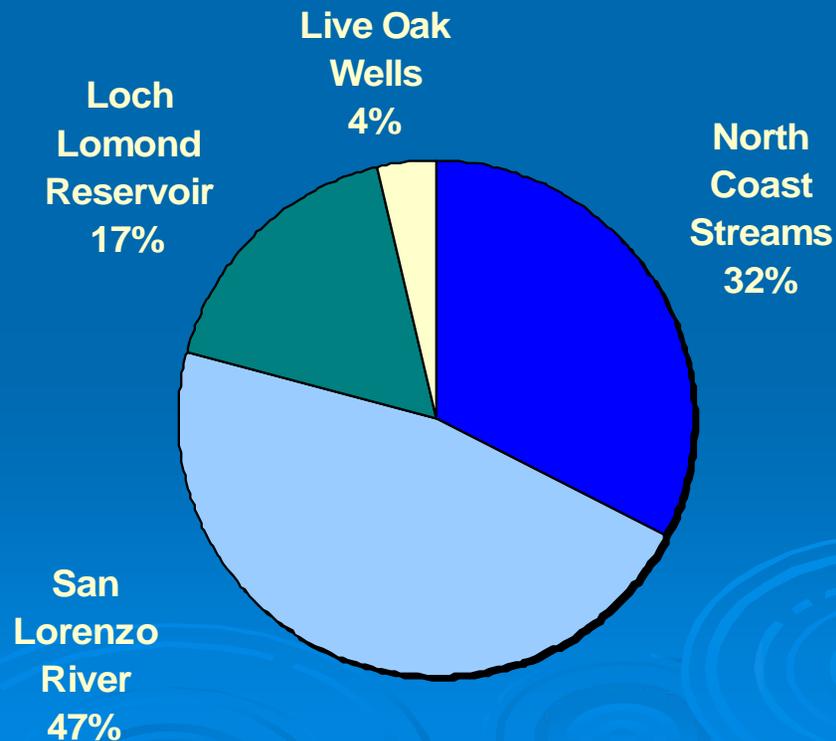
Employment:
~ 45,000

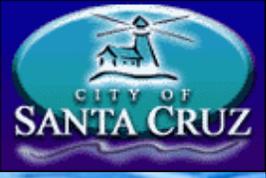




Vulnerability to Water Shortage

- Predominantly local surface water sources
- Geographically isolated





Reasons for Updating Plan

- Existing drought emergency ordinance last used in 1992
- Many changes in community makeup and usage characteristics since then
- In 2003, City adopted Integrated Water Plan



Integrated Water Plan

1. Reduce average daily demand through water conservation in all years
2. Temporary cutbacks in water use of up to 15% in drought years
3. Develop 2.5 mgd desalination facility



Desalination

Long-term water conservation

Short-term demand reduction



Two Fundamental Purposes

1. To establish procedures and actions to achieve the up to 15 percent use curtailment set forth in the IWP
2. To describe how the City would respond to shortages in water supply ranging up to 50 percent – as required by State law



Process

- Project was broken down into 12 tasks
- Establish goals, review state laws, shortage stages, consumption reduction methods, develop allocation, etc.
- Reviewed over 20 other water shortage contingency plans in California and selected cities across nation
- Overseen by City Water Commission

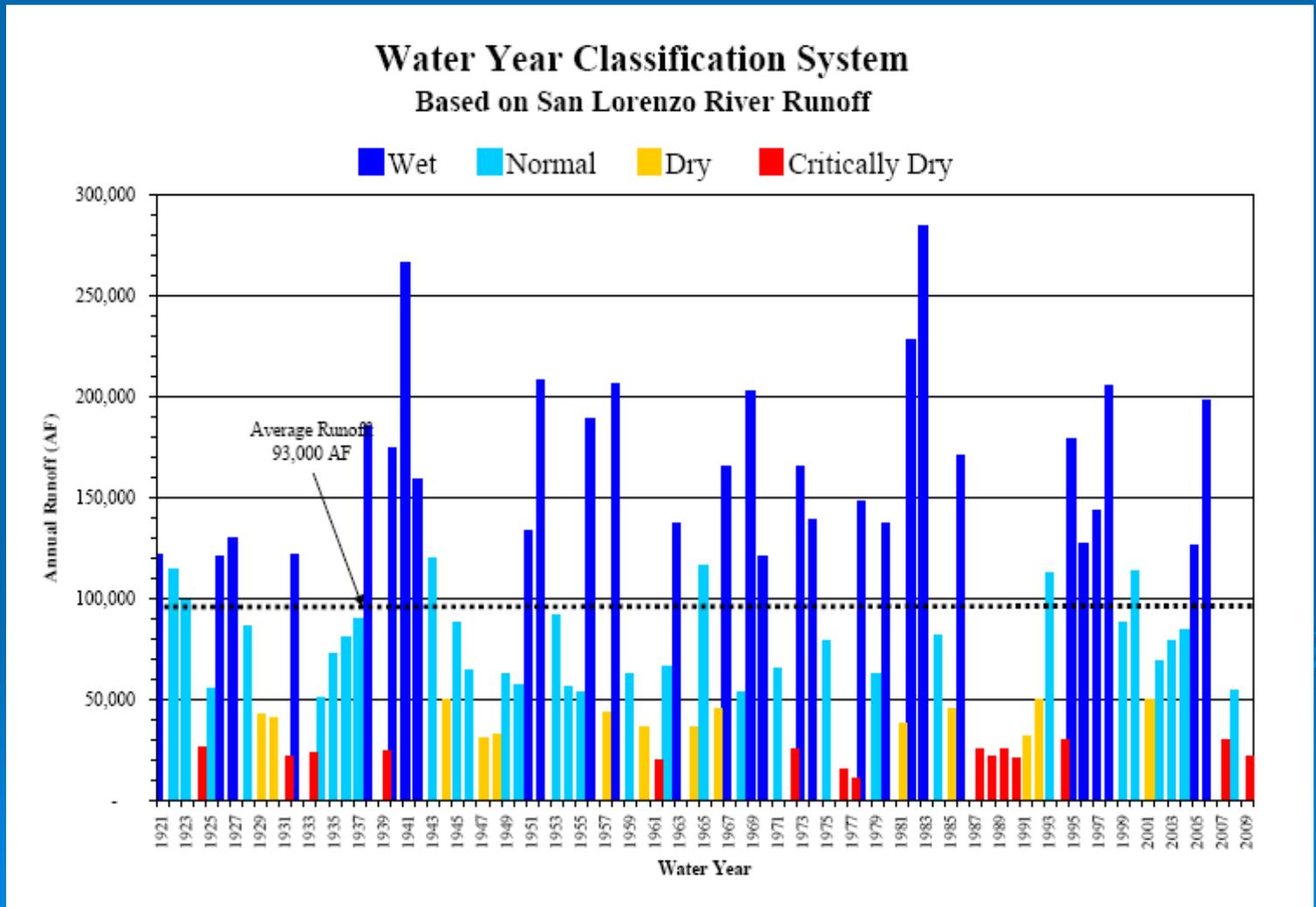


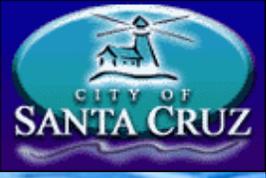
Assessing Water Supply and Demand

- Rainfall
- Runoff
- Water Year Classification
- Reservoir Storage
- No one single criterion or “trigger” used to identify if a shortage exists; must consider all variables, including demand



Water Year Classification





Determining if a Water Shortage Exists

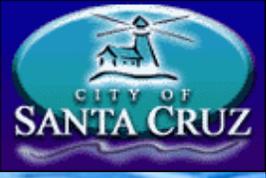
- Late winter, early spring: staff prepares a forecast of water storage for end of dry season
- Evaluate whether reserves will be sufficient in case of another dry year
- If not, the question becomes how much reservoir water is available for the current year, and how much should be saved for the next year



Demand Reduction Program: 5 Stage Structure

Stage	Magnitude of Water Shortage	Stage Title
1	0-5%	Water Shortage Alert
2	5-15%	Water Shortage Warning
3	15-25%	Water Shortage Emergency
4	25-35%	Severe Water Shortage Emergency
5	35-50%	Critical Water Shortage Emergency

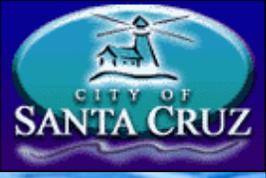
- Difference between percentage figures used to describe the system-wide shortfall and how individual customers are affected



Demand Reduction Strategy

Four Elements:

- Allocation system
- Demand reduction measures
- Publicity and communications
- Operating actions



Priority-Based Allocation System

Classified demands into 3 usage priorities:

- Health and safety
- Business
- Irrigation/other outdoor usage

Scaled back water delivery by priority:

Stage	Overall System Shortfall:	Health/Safety	Business	Irrigation
2	15%	95	95	64
3	25%	95	90	34
4	35%	90	85	12
5	50%	75	67	0



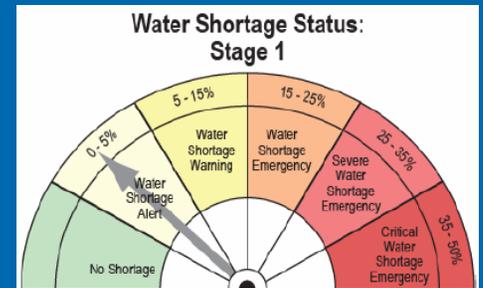
Customer Reduction Goals

	No Deficiency		Stage 2 15% Deficiency		Stage 3 25% Deficiency		Stage 4 35% Deficiency		Stage 5 50% Deficiency	
	Delivery		Delivery		Delivery		Delivery		Delivery	
	%	Volume (mil gal)	%	Volume (mil gal)	%	Volume (mil gal)	%	Volume (mil gal)	%	Volume (mil gal)
Normal Peak Season Demand = 2,473 mg										
Single Family Residential	100	1,031	84%	864	73%	753	62%	639	48%	495
Multiple Residential	100	524	87%	454	78%	411	69%	361	55%	287
Business	100	438	95%	416	92%	402	87%	381	70%	307
UC Santa Cruz	100	132	85%	113	76%	100	66%	87	52%	68
Other Industrial	100	23	95%	22	90%	21	85%	20	67%	15
Municipal	100	48	76%	36	57%	27	41%	20	28%	14
Irrigation	100	110	64%	70	34%	37	12%	13	0%	0
Golf Course Irrigation	100	106	73%	78	51%	54	34%	36	20%	21
Coast Irrigation	100	59	95%	56	90%	53	85%	50	67%	40
Other	100	2	95%	2	90%	2	50%	1	50%	1
Total	100	2,473	85%	2,111	75%	1,861	65%	1,607	50%	1,247
Demand Reduction %, Million gallons	0	0	15%	-362	25%	-612	35%	-866	50%	-1,226



Stage 1: Water Shortage Alert (0-5%)

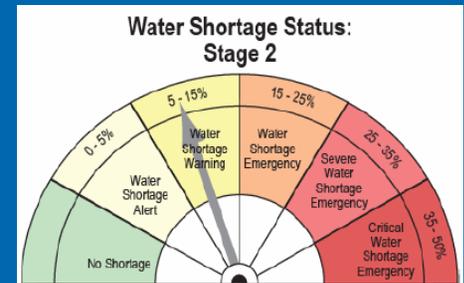
- Voluntary water conservation
- Step up water waste enforcement
- Time-of-day watering restrictions
- Prohibition on non-essential water uses

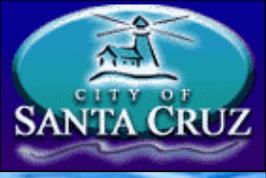




Stage 2: Water Shortage Warning (5-15%)

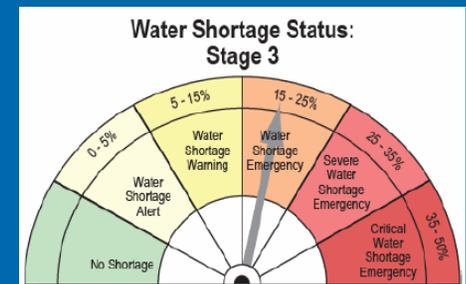
- Irrigation limited to specified days of week
- Disallow automatic irrigation on certain days
- Further prohibitions on exterior washing
- Large landscape water budgets





Stage 3: Water Shortage Emergency (15-25%)

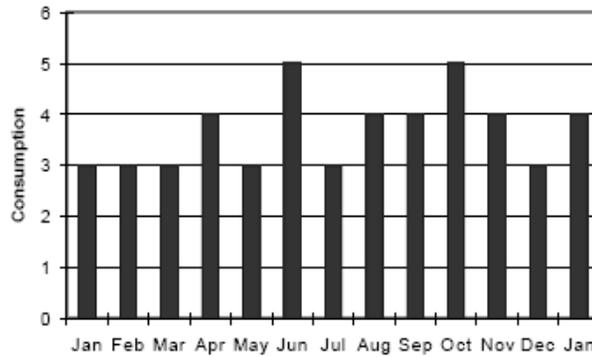
- Residential water rationing
- Required water shortage signage in all commercial establishments
- Large landscape: lower water budgets



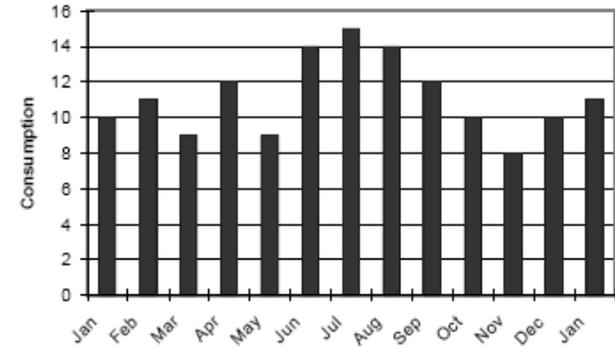


Stage 3: Water Shortage Emergency (15-25%)

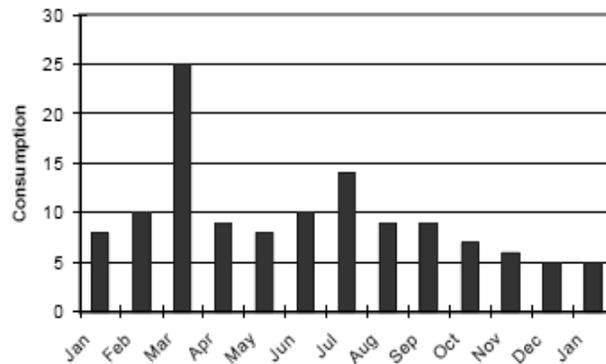
Usage Analysis:



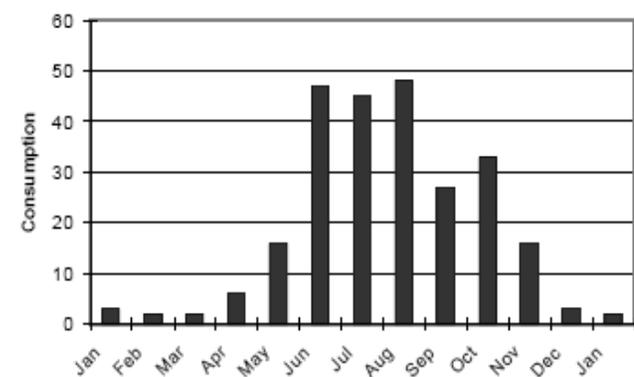
Usage Analysis:

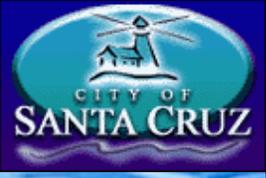


Usage Analysis:



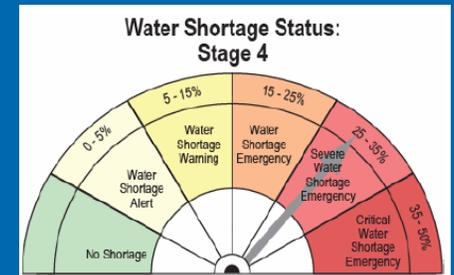
Usage Analysis:





Stage 4: Severe Water Shortage Emergency (25-35%)

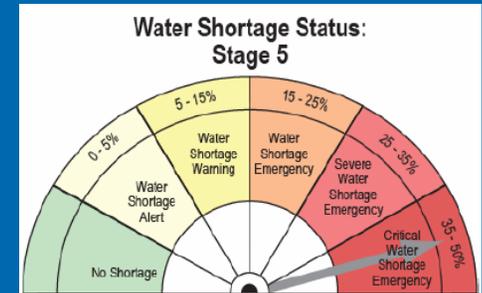
- Reduced residential water rationing allotments
- Commercial water rationing
- Prohibition on lawn/turf irrigation

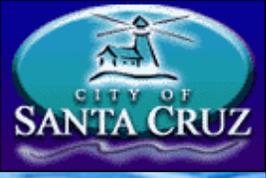




Stage 5: Critical Water Shortage Emergency (35-50%)

- Further reduced residential rationing allotments
- Reduced commercial rationing allotments
- Prohibition on all residential outdoor water use





Enforcement, Exceptions, Appeals

- Starts with personal contact (field, telephone, letter)
- Penalties added to utility bill
- Excess use penalties when in rationing
- Flow restriction, disconnection
- Plan addresses language for exceptions
- Appeals Board starting Stage 3



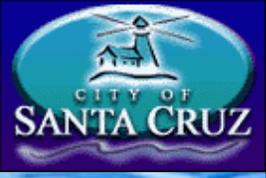
Publicity and Communications

- Elected officials: governing board, councils, supervisors, other public agencies
- All departments: IT, operations, customer service, (office & field)
- News media
- Large water users, groups most affected
- Customers/general public



Implementation

Target Date	Action
Months of Oct -Dec	Monitor rainfall, reservoir level, and runoff amounts
Late January	Prepare written status report on water supply conditions
Early February	Present initial estimate of water supply availability for year ahead
Early March	Present revised estimate of water supply availability for year ahead
Mid-March	SCWD announces existence of water shortage (if applicable)
Mid to late March	SCWD determines monthly water production budget and need for voluntary or mandatory response.
Early April	Present shortage response recommendation to Water Commission; notice of public hearing published
Mid-April	City Council formally declares water supply shortage, adopts emergency ordinance
Mid to late April	Water shortage regulations become effective



Implementation (cont'd)

- Process for declaring water shortage
- Public notification
- Additional personnel needed
- Range of potential revenue losses
- Utility billing capabilities
- Updated water shortage ordinance



Questions and Comments

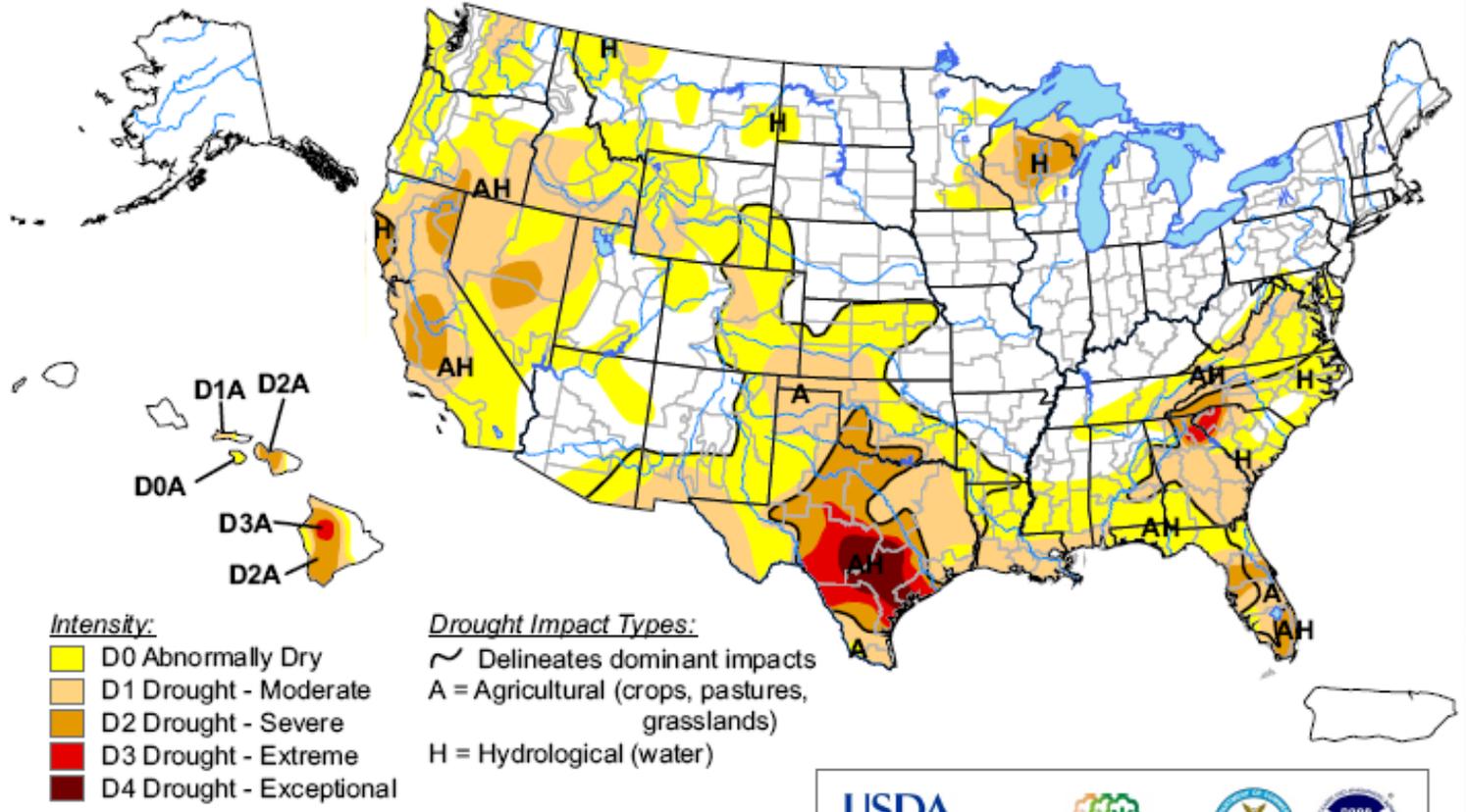
1. Most common comment is to not penalize conservative users
2. Question about how accounts are classified; can they be changed to a different category?
3. Businesses that have invested and are already implementing water conservation
4. What does this plan have to do with community growth and development?
5. Plan should make an allowance for vegetable gardens and local food production



Current Status

U.S. Drought Monitor

March 10, 2009
Valid 8 a.m. EDT



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



Released Thursday, March 12, 2009

Authors: Michael Brewer/Liz Love-Brotak, NOAA/NESDIS/NCDC

<http://drought.unl.edu/dm>



Water Supply Status and Outlook for 2009

- Reservoir: now 99% full, but:
- 2007 exceptionally dry and 2008 below average
- Rainfall: 77% of average
- Runoff: 33% of average
- WY 09 Classification: **Dry**
- Uncertainty about coast and river flows this summer
- Decision on whether to invoke Stage 1 or Stage 2 tomorrow.



What's Next?

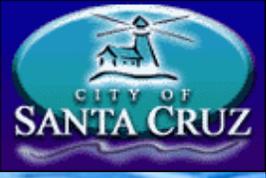
City Council adopted plan 3/10/09

Short-term:

- Prepare updated water shortage ordinance
- Declaration, public notification

Long-term:

- Make needed modifications to new utility billing system
- Large landscape water budgets



Questions ?

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