



Heritage Ranch CSD
Water Status / Update
Drought Planning / Preparation
February 14, 2014

Water Status

- ▶ Reservoir Elevation 725 feet. 21% of capacity. 80,873 acre feet in storage.
- ▶ Lowest reservoir elevation, in mid February, that we have experienced since 1992.
- ▶ 60 cubic feet per second (cfs) release of water to the River. “NOAA Fisheries” release.
- ▶ Two months remaining in rainfall season.
- ▶ If next two months is not very wet, we will be at historic low water elevations in summer.
- ▶ Gallery wells in normal winter operations – low customer water demand.

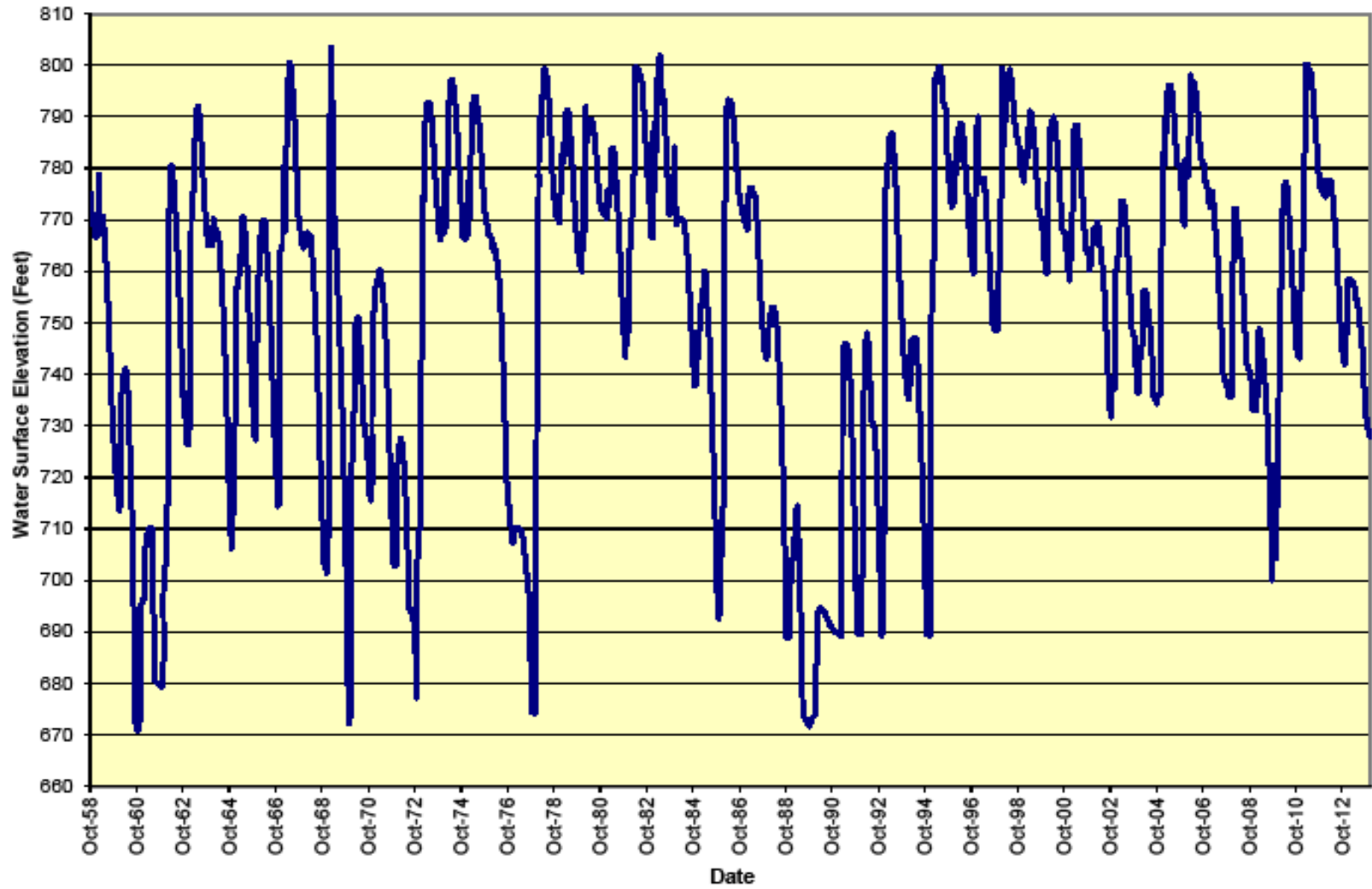
History

- ▶ One water supply source, the Gallery Well, which is fed via three 60' horizontal wells located in the Nacimientos River bed just downstream of the Nacimientos Dam.
- ▶ Release of the water to the River is controlled by MCWRA until the water level of the reservoir drops below 687 feet, minimum pool, at which time SLO County may obtain control over the release of water.
- ▶ Elevation 670 feet, dead pool, of the Nacimientos Reservoir, water can no longer be gravity released from the lower outlet works of the dam.
- ▶ In response to drought concerns, the HRCSD Board of Directors adopted a Water Conservation Plan in June 2009, which provides procedures and policies to reduce water demand at Heritage Ranch during drought conditions.

Heritage Ranch Water Contracts

- ▶ The District has four contracts with SLO County totaling 889 afy of Nacimiento water:
 - 1972 = 475 afy
 - 1992 = 212 afy
 - 2002 = 98 afy
 - 2006 = 104 afy
- ▶ The contracts specify the District shall obtain its water from the low level outlet works or diversion wells within the watershed.
- ▶ The contracts provide for a reduction of water delivery during water shortage years.

NACIMIENTO RESERVOIR ELEVATION



River Flows 2014

- ▶ 60 cubic feet per second (cfs) release of water to the River. Minimum “NOAA Fisheries” release.
- ▶ MCWRA is meeting with NOAA Fisheries on February 20 to request a 25 cfs flow this summer due to drought conditions.
- ▶ Historically, we experience summer time river flows of upwards of 400 cfs.
- ▶ A 25 cfs flow all summer long will not provide sufficient river water level to meet peak summer demand.
- ▶ Low river flows, volume of water in the river above the gallery wells is lowered and pump yields are decreased.
- ▶ The traditional gallery well pump volume of 700 gallons per minute (gpm) are reduced to 500 gpm.
- ▶ Lower flows also binds up the wells causing more frequent backwashing to loosen the media up above the wells.
- ▶ Backwashing uses water that has already been pumped and lowers daily water production

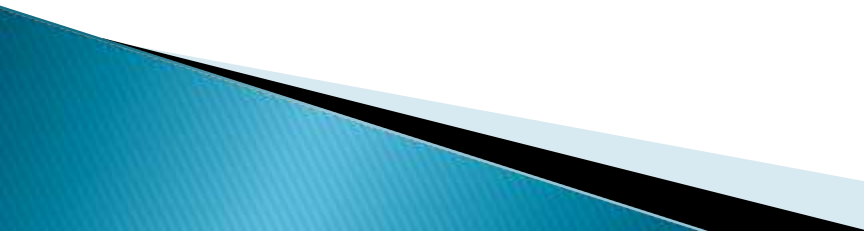
Salinas Valley Water Project

- ▶ MCWRA uses Nacimiento and San Antonio to operate the SVWP.
- ▶ Provides management of groundwater resources in the basin by stopping seawater intrusion and providing water supply for agricultural needs.
- ▶ Two critical components that work in conjunction with each other.
 - Reoperation of Reservoir. The spillway modifications changed the way Nacimiento reservoir is operated by allowing more water to be stored in the winter for recharge and diversion during the irrigation season.
 - Salinas River Diversion Facility (SRDF). The Salinas River is used to transport water to a diversion facility near Marina in the upper Salinas Valley. The SRDF includes an inflatable dam designed to operate from April to November. Water from the Salinas River is diverted and mixed with recycled water and delivered for agricultural irrigation.
- ▶ MCWRA intends to operate their SRDF this year for 2–4 weeks. They will increase flows to 300–400 cfs from Nacimiento on March 15 to get the water to the SRDF by April 1. Operating the SRDF will lower the reservoir level very fast in a short time.

SLO & Monterey 1959 Water Agreement

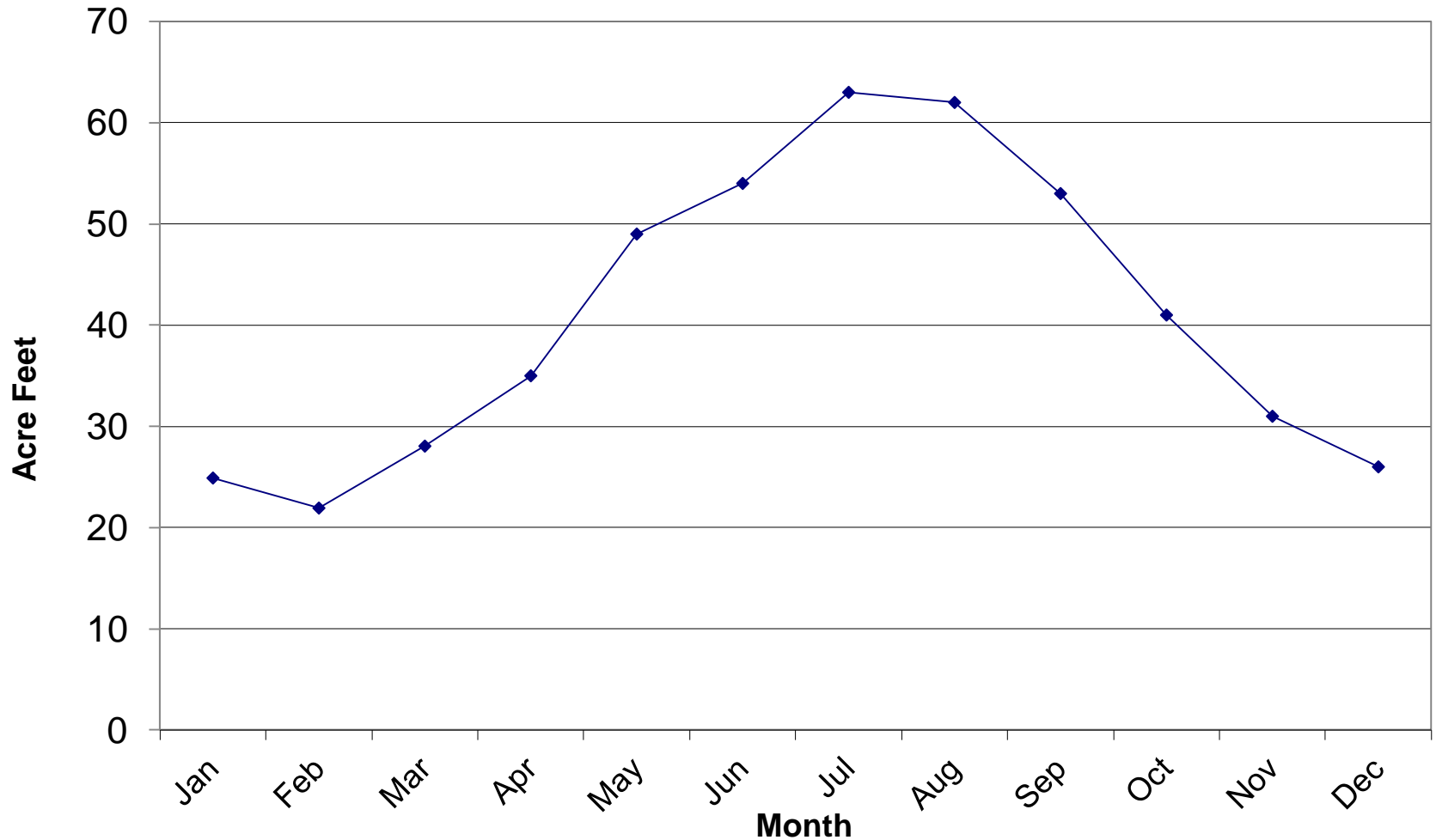
- ▶ SLO County's right to the "last water".
- ▶ Section 11 paragraphs (j) of the 1959 Agreement specifies MCWRA shall maintain 22,300 AF (minimum pool) in reservoir on Sept 30.
- ▶ Disagreement of the interpretation of the language in the agreement.
- ▶ MCWRA indicates their operation of the SRDF along with reduced flows for the remainder of the year will provide water above minimum pool until September 30.
- ▶ Once minimum pool is reached, SLO County can reduce the flow of water to the river.

Drought Impacts

- ▶ At low water elevations the daily release of water to the river will be reduced.
 - ▶ Historic spring & summer river flows are in the range of 200 cfs to 400 cfs.
 - ▶ Gallery well depends on high river flows to meet peak summer demand.
 - ▶ River flows of less than 300 cfs, reduces well production, causes well to pause.
 - ▶ Reduced flows = low yield, frequent backwashing and extended pumping cycles.
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HRCSD Monthly Water Demand

23 year history



Elevation (feet)	Capacity	Description
800	100%	Elevation at which the reservoir is considered full; top of spillway. 377,900 acre feet (AF) of water in storage
730-720	24% - 18%	Stage I – Drought Education Phase encourages/educates customers to start conserving water, no water use prohibitions.
725	21%	Elevation of reservoir on February 13, 2014.
720-700	18% - 9%	Stage II – Drought Awareness Phase. Water use prohibitions considered with the goal of achieving a 20% reduction in water consumption.
700-680	9% - 4%	Stage III – Drought Phase. Further water use prohibitions considered with a goal of achieving a minimum 30% reduction in water consumption.
687	6%	Minimum pool; lowest reservoir elevation at which water is available to the MCWRA for release to the river. SLO may take its water entitlement below this elevation. 22,300 AF of water in storage.
680-670	4% - 3%	Stage IV – Drought Phase. Further water use prohibitions considered with a goal of achieving a minimum 50% reduction in water consumption.
670	3%	Dead pool; minimum elevation water can be released from the low level outlet works; lowest possible reservoir elevation water can flow from the lower outlet works by gravity. 10,300 AF of water in storage.

Phase II – Drought Awareness

It's all about irrigation

- ▶ 50% to 70% of all water production used outside.
- ▶ January 2014 Water and Sewer Treatment Plants:
 - WTP = 13.5 million gallons produced
 - STP = 5.21 million gallons treated
- ▶ 61% of water not for human consumption / sanitation.
- ▶ If all water users reduce irrigation we may be able to make it through Phase II with no other actions.
- ▶ Water use for washing vehicles, boats, trailer, mobile equipment, and sidewalks / driveways is discouraged.
- ▶ HRCSD provides incentives / rebates for replacement of high water use plumbing fixtures & lawn reductions.

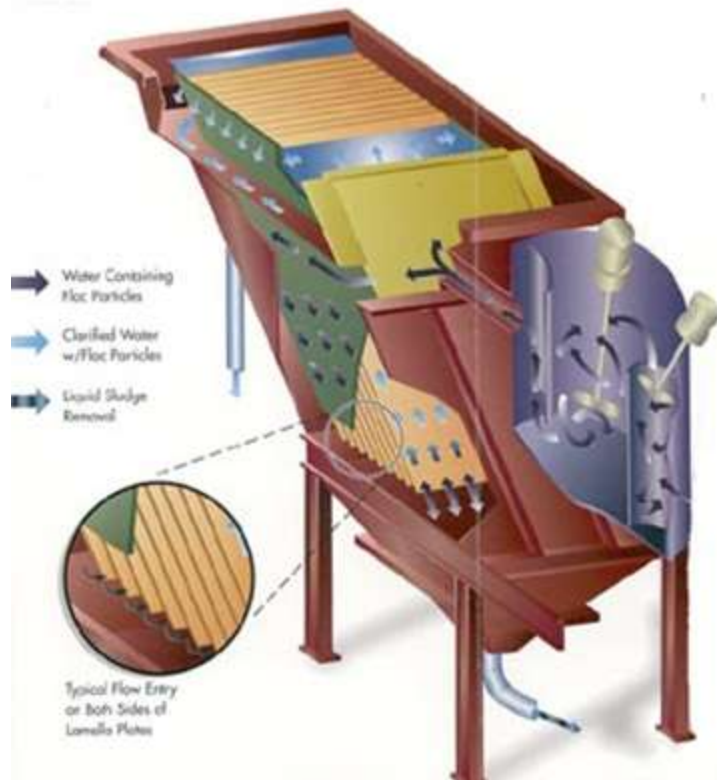
Other Water Options

- ▶ Emergency Water Connection to the Nacimientto Water Project (pipeline) will provide access to water below 670 feet (dead pool), lowest possible reservoir elevation water can flow from outlet works by gravity.
- ▶ Engineered by HRCSD, approved by County staff. BOS must approve use on an emergency basis under the Nacimientto Water Agreement.
- ▶ Actual connection 2–3 days, \$10,000 – \$15,000 project.
- ▶ Easement Agreement with the adjacent property owner.
- ▶ Project only if the Nacimientto River is dry.
- ▶ Reservoir has not reached dead pool since the dam was built.
- ▶ Dead pool conditions should not occur (if the 1959 Agreement is enforced) until sometime in 2015 and only if drought continues.

WTP Improvements – Raw Water

- ▶ Last 3 years, improvements to the WTP to handle “raw water”.
- ▶ Direct Filtration vs. Conventional Filtration.
- ▶ Accommodate pipeline water, direct draw, high organic loads.
- ▶ Phase I – Powder Activated Carbon & Potassium Permanganate. Competed
- ▶ Phase II – Plate Settler, bids due 3/20/14
- ▶ \$1.3 million improvements. Loan and reserves.

What is a plate settler?



- Improves solids removal
 - Prevent solids from hitting the filters
- Slows particle velocities
- Flocculent added
- Rapid mix
- Flocculation
- Settling

Plate Settler Picture



Conclusion

- ▶ Heritage Ranch has experienced droughts in the past and we are experiencing one now.
 - ▶ Droughts are a normal recurring feature.
 - ▶ Community has grown and we must take a proactive approach in our management of water demand.
 - ▶ Policies & procedures to reduce the community's water consumption during a drought, so we may maintain water for human consumption, sanitation, and fire protection.
 - ▶ Customers must use less water during drought conditions.
 - ▶ Reduction in irrigation is key.
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