

# Are You Prepared for California's Unprecedented Drought?

California is in the throes of an extreme and persistent drought, and many of the coastal streams and tributaries that rural families depend on in Humboldt and Mendocino County and elsewhere are likely to reach perilously low levels or to dry up completely as the summer progresses. For people, this translates to reduced water security and increased health risks associated with poor water quality. For juvenile salmonids, low flows can altogether reduce their chances for survival as pools become shallower, warmer, and disconnected.



*Both the Mattole and Eel Rivers are suffering from historically low flows. Pools that juvenile salmon depend on are at high risk of drying up this year.*

## Water Storage & Forbearance

Ideally, the goal of water storage and forbearance is to prepare a household for not pumping at all during the driest months of the year, whether during a one month dry season or a six month dry season.

Water storage and forbearance is a water conservation method requiring that a household store enough water during the wet winter season in order to forbear from pumping during the dry summer season when flows are at their lowest. Based on average daily water usage rates provided by the State Water Resources Control Board, water storage for 3.5 months, assuming a water-efficient, two-person household and an 800 sq. ft. garden, is calculated at 23,000 gallons. This includes 10,500 gallons for household use (based on 50 gpd per person), 10,000 gallons for a water-efficient garden and 2,500 gallons of fire safety water.



*50,000 gallons of storage allows residents to forbear from diverting during the dry summer months.*

Before You Purchase Water Storage Tanks, We Recommend That You:

- **Receive a technical consultation.** It is important to speak with a professional before purchasing water tanks, to make sure that your water storage will be sited and installed properly based on the unique geological properties of your land.
- **Find out about permitting.** Permitting needs vary depending on the tank style, capacity, and the county that you live in. We recommend that

you contact your county building department to determine permit requirements for your location, and there may be organizations in your area who can assist you with the permitting process.

- **Calculate your water storage needs.** It is recommended that every household store enough water to last for a dry season lasting 3 ½ months, or 105 days. The State Water Resources Control Board suggests calculating your water storage needs based on the following:
  - Household water use: 55 gallons per day (gpd) per person
  - Garden water use: 18.5 gpd per 100 square feet of garden
  - Fire protection water reserve: 2,500 gallons

## Fish Friendly Water Storage

There are four key elements to fish-friendly water storage\*:

- Calculate your household's water storage needs for the low-flow season.
- Fill and top your tank(s) outside of the low-flow season.
- Limit pump rates and use fish screens to protect small fish.
- Monitor your weekly water use to meet your water budget.

\*See Sanctuary Forest's Water Storage Guide (2008) for additional information.

## Water Conservation & Efficiency

Tank-filling systems and piping are thought to be significant contributors to water loss, but the good news is that they can be easily remedied. For example, many tank-filling systems do not have automatic shut-off valves, resulting in unnecessary overflows. By installing float valves, automatic shut-off valves and/or overflow piping back to the source river, tributary, or stream, countless gallons of water can be saved at relatively little cost. System leaks resulting from damage from animals, joint leaks from frost, or a dripping faucet (inside or outside a house) can also result in water waste. Conducting annual system maintenance and installing water efficient fixtures (like low flow shower heads, toilets and faucet aerators) can reduce these impacts significantly.

Water-efficient gardening and permaculture techniques can also greatly reduce water use. The average standard water use for an 800 sq. ft. garden is 150 gallons per day (gpd), 15,500



*Rainwater catchment is a great way to water your yard and does not require filing for appropriative water rights.*



*Mulching and other permaculture practices help conserve water.*

gallons total for 3.5 months (based on the State Water Resources Control Board suggested water use). These water use estimates can be reduced by 50% or more by applying different techniques that can be easy to implement at little cost.

## Examples Include:

- Permaculture
- Drip irrigation
- Deep Mulching
- Soil preparation\*
- Timing of watering and methods to avoid overwatering
- Plant selection and timing of planting
- Rainwater harvesting in the garden (build berms)
- Dry farming

\*Increasing organic content of soil from 1% to 2% organic matter can reduce irrigation by 75%.



The potential water savings from water conservation are roughly estimated based on an overall comparison between water-efficient households and gardens versus standard usage. Total water use (for household and garden combined) is estimated at 195 gpd for the water-efficient model and at 500 gpd for the standard usage model. Both models are calculated for a two person household and an 800 sq. ft. garden. Water conservation savings are estimated at 305 gpd (61% of standard use) and 32,000 gallons per household over a 3.5 month period. While storage along with complete cessation water withdrawals offers the greatest potential benefit to streamflows, storage may not be feasible for every household. Water conservation measures are economical and within the means of most households.