# WATER STORAGE OVERVIEW



Humboldt County's Mediterranean climate is often characterized by long, dry summers. Little or no rain may result in low stream flows during the summer months. Because water in streams and springs may not be available, rural property owners can prepare for the dry season by storing water by May 31st that will last for at least 105 days.

## STORAGE AMOUNT

According to the State Water Resources Control Board, between 55 and 75 gallons of water is needed per person per day depending on whether the household has water conservation devices installed. At a minimum, using these calculations, a family of three using low flow fixtures would need approximately 17,325 gallons of stored water to meet the suggested 105 day supply for domestic use only. This figure does not include irrigation. In addition, a minimum of 2500 gallons may also be needed on-site for wildfire protection. For larger households or under other conditions, 50,000 gallons or more of storage capacity may be necessary for a 105 day period.

## STORAGE OPTIONS

There are many ways to store water. Water tanks, bladders, ponds, and rainwater catchment systems are the most common options.

Water tanks may be constructed of various materials such as metal, plastic or fiberglass. Bladders are typically constructed of industrial strength flexible nylon or PVC plastic. Water tanks and bladders can store more than 100,000 gallons of water, depending on the model. Water bladders can sometimes be difficult to install, may fail due to the material breaking down over time and may not be suitable as a drinking water source or long-term solution.

Ponds are depressions in the ground that store water. Ponds can be filled with water run-off during the wet season for use in the dry season.

Rainwater catchment systems collect run-off from rooftops which is then stored for later use. Since collecting rainwater in this way does not require additional state permitting, it is a cost effective solution to meeting some of your water needs.

## WATER CONSERVATION

Water conservation is just as important as water storage when preparing for the dry season. Use of conservation techniques result in a longer lasting water supply. One conservation strategy is installing a graywater system. Graywater systems reuse water from laundry, hand sinks, showers and baths and reuse it for toilet flushing and irrigation. When conserving, it is also important to create a water budget and regularly track water flow to ensure that household needs are met through the dry season.

Flow is the measurement of the total fluid that passes a fixed location. There are several ways to measure flow. Installation of a water meter is one method of tracking weekly water use and staying within your water budget. Other ways of measuring flow include the bucket method and float method. Both methods require minimal investment and provide fairly accurate results.

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Simple steps to conserve water include:

- Ensure fixtures are not leaking and working properly
- Replace older fixtures and appliances with more efficient, low-flow models
- Turn off water unless actually rinsing dishes, showering, or brushing teeth
- Regularly inspect tanks and water systems for leaks
- Install a shut off valve to divert water back to prevent overflow
- Reduce irrigation water by using drought-resistant plants or drip irrigation
- Reuse graywater and prevent runoff

## WATER STORAGE PERMITS

Development of water storage structures requires permits from local agencies. For example, a permit is required from the Building Inspection Division for any water storage structure in excess of 5,000 gallons regardless of the storage type or method. A Conditional Use Permit may also be required from the Current Planning Division for general agriculture or rural residential uses if the storage exceeds 50,000 gallons.

Permit applications must include a detailed site map known as a plot plan. Among other things, a plot plan must show the location of site characteristics such as property lines, roads, utilities, natural features as well as all existing and proposed structures. Plot plans must show distances between features and structures and it is preferred, but not required, that plot plans be drawn to scale. Plot plans can either be prepared by certified professionals or by applicants themselves. As part of the planning or building permit application review, other agencies are notified and asked to respond with comments. These agencies can include Public Works, Environmental Health, California Department of Fish and Wildlife and the US Fish and Wildlife Service.

It is important to plan ahead. While the building permit process takes approximately 4 to 6 weeks, the Conditional Use Permit process can take 4 to 6 months. For more specific information about permit requirements, please contact the Humboldt County Planning and Building Department at (707) 445-7245. A Water Storage Permits brochure is also available.

## ADDITIONAL INFORMATION AND REQUIREMENTS

Depending on the water source, a Lake or Streambed Alteration Agreement may be needed from the Department of Fish and Wildlife. For additional information on obtaining a Streambed Alteration Agreement or questions about pumping and fish screens, contact the Department of Fish and Wildlife located at 619 2nd Street, Eureka, CA 9550, (707) 445-6493 or visit: https://www.dfg.ca.gov/habcon/1600

For more information regarding water rights, please contact the State Water Resources Control Board at P.O. Box 100 Sacramento, CA 95812, (916) 314-5300 or visit:
http://www.swrcb.ca.gov/waterrights/water_issues/programs/registrations/index.shtml

There are many online resources with additional information on water conservation:
http://www.appropedia.org/How_to_measure_stream_flow_rate
http://greywateraction.org
http://www.yournec.org
http://humboldtgov.org/DocumentCenter/Home/View/6546
http://www.waterboards.ca.gov/stormfilm/