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Introduction

Castaic Dam Public Information Tool Kit

The California Department of Water Resources invites local agencies and non-government organizations to use this public information tool kit to help keep residents informed about the Castaic Dam modernization program and dam safety.

These information materials are suitable to use throughout the year, and National Dam Safety Awareness Day is a particularly good time to create local media and public interest in the issue.

About the Dam

The California Department of Water Resources owns and operates the State Water Project, which includes Castaic Lake and Dam.

The State Water Project is a multi-purpose water storage and delivery system that extends two-thirds the length of California. This collection of canals, pipelines, reservoirs, and hydroelectric power facilities delivers clean water to millions of Californians; thousands of acres of farmland; and businesses throughout our state.

Construction on Castaic Dam was completed in 1974. The California Department of Water Resources is modernizing this dam, which includes identifying and proactively addressing any issues that could impact the delivery of water or the safety of surrounding communities.

Why this is Important

“Intersecting almost all dam safety issues is the need for public education about dams. The ordinary citizen is unaware that the beautiful lakes on which they boat, ski, or fish are only there because of manmade dams. Developers build in dam-break flood inundation areas knowing nothing about the potential devastation an upstream dam could cause should it ever fail.

In fact, some developers and zoning officials are completely unaware of dams within their community. Even if citizens understand and are aware of dams, they still can be overly confident in the infallibility of these manmade structures. Living in dam-break flood-prone areas is a risk.”

- Association of State Dam Safety Officials

May 31st is National Dam Safety Awareness Day

National Dam Safety Awareness Day was established in memoriam of the 2,220 people who lost their lives in the 1889 South Fork Dam failure near Johnston, Pennsylvania.

National Dam Safety Awareness Day was created to encourage individual and community responsibility and best practices for dam safety, and what steps people can take to either prevent dam failures or lessen the impact if a failure was to occur.

Another goal of National Dam Safety Awareness Day is to promote the benefits that dams offer.

<https://damsafety.org/NDSAD>

Question & Answer

What work is being done at the Castaic Dam?

As part of the California Department of Water Resources' (DWR) statewide efforts to make State Water Project facilities more resilient, DWR is modernizing Castaic Dam in Los Angeles County.

The construction activity you may see or learn about includes identifying and proactively addressing any issues that could impact the delivery of water or the safety of surrounding communities. DWR launched the Castaic Dam modernization program in 2018 and the modernization efforts will take about 10 years to complete. Activities include assessing the dam and its associated structures and managing construction activities to ensure the dam and structures allow for continued safe operations.

Work at the dam includes:

- Assessing the spillway for reliability and resiliency.
- Making improvements or repairs to spillways, outlet structures, release valves, and instrumentation.
- Conducting seismic analyses to understand how the dam and its features will be impacted by potential earthquakes.
- Continually assessing the dam to identify potential performance issues and proactively implementing solutions to reduce potential risks.

Is Castaic Dam safe?

Castaic Dam is safe as currently operated. However, improvements are being made to prevent possible impacts due to a major earthquake or hydrologic event.

The dam and its related structures are regularly assessed by the Division of Safety of Dams (DSOD), California's dam safety regulatory agency, and by the California Department of Water Resources (DWR), the dam's owner. During previous assessments, DWR identified potential issues at structures adjacent to the dam and launched the modernization program to address those issues. The embankment portion of the dam has been evaluated and determined safe.

Based on the current conditions, DSOD determined that there is no need for DWR to change how it operates the dam. DWR takes risk reduction measures throughout the course of the modernization program, such as lowering reservoir levels during the winter months to prevent spillway use. In future assessments, if DSOD determines a change in operations is necessary due to increased potential risks, DWR will notify local emergency management agencies about those changes.

Why am I receiving this public safety information?

The DWR and local emergency management agencies would like the residents who live near or below dams to be aware of the inherent flood risk associated with the dam(s). The intent of sharing this information is to help residents to better understand their risks and to take

seriously any public notification about dam safety and/or public safety.

How will I know if something is wrong at the dam that I should be aware of?

Local public safety officials will notify residents if there is a risk to public safety due to a concern with the dam or its adjacent structures. Local officials will issue alerts to make their residents aware of a developing situation and alerts when action needs to be taken by residents to protect themselves.

Where should I go to get out of harm's way if there is a problem at the dam?

Local public safety officials will alert local media about preferred evacuation routes and help to direct traffic, based on the specific situation.

How can I protect my family and property from flooding?

Residents who live near or below dams are encouraged to make a plan about how to evacuate if they are told to do so by local safety officials. Always listen to public officials!

If you live in Ventura County, visit the READY Ventura website for information about preparing, responding, and recovering from dam related incidents at <https://www.readyventuracounty.org/stay-informed/dam-failure/>

If you live in Los Angeles County, visit the

flood information website at <https://dpw.lacounty.gov/wrd/flood/>

More information is available here:

https://www.redcross.org/content/dam/redcross/atg/PDF_s/Preparedness_Disaster_Recovery/Disaster_Preparedness/Flood/Flood.pdf

<https://water.ca.gov/What-We-Do/Flood-Preparedness/Flood-Preparedness-Week>



CASTAIC DAM MODERNIZATION PROGRAM

CASTAIC DAM AND LAKE are located 45 miles northwest of Los Angeles and provide water for the greater LA area. The dam was built between 1965 and 1974 as part of the California Department of Water Resources (DWR) State Water Project (SWP).

DWR is modernizing its SWP portfolio across the state. This includes identifying and proactively addressing any issues that could impact the delivery of water or the safety of surrounding communities. As part of these efforts, in 2018 DWR launched the Castaic Dam Modernization Program (CADMP), which is primarily focused on evaluating, assessing, and improving the likely performance of the dam and associated appurtenances during a major earthquake or extreme weather event, including the condition of the spillway, which has never been used in the nearly 50-year history of the dam.

SPILLWAY CONDITION AND EXTREME WEATHER ASSESSMENTS

To date, the spillway at Castaic Dam has never been activated – which would occur when water from the reservoir overflows the ungated weir and flows down the service spillway. Regardless, dam safety engineers have identified that some of the concrete



invert panels and wall sections in the spillway have shifted or lifted since original construction, which could lead to increased potential of erosion if the spillway were used to release water.

As a proactive interim risk reduction measure, DWR has lowered water levels in the rainy season since 2018 to attenuate against larger rain events, should they occur, without activating the spillway. In 2020, DWR performed an extensive investigation into the geologic characterization of the site to determine the causes and potential impacts due to expansive material under the slabs that are causing the concrete to shift. The results of this investigation will provide detailed information to evaluate the expansive material and develop potential rehabilitation alternatives to ensure the spillway will function effectively if it is ever needed in an extreme weather event.

EARTHQUAKE RESILIENCY ASSESSMENTS

A stability analysis conducted in 2018 determined that the earthen embankment dam at Castaic will remain stable in the event of a major earthquake. However, there are appurtenances of the dam that could be damaged, such as the outlet structures

CASTAIC DAM

Location: Los Angeles County

Construction Completion: 1974

Type of Dam: Earth embankment

Height: 425 feet

Length: 4,900 feet

Operating Storage Capacity: 323,700 acre feet

Outlet Works: A low and a high concrete free-standing intake structure with a single outlet tunnel

Spillway Type: Uncontrolled (ungated) overflow

Function of Storage:

- Normal Operation water deliveries
- Emergency Storage
- Multiple recreation opportunities
- State Water Project: Terminus of the West Branch of the State Water Project

State Water Contractor Water Deliveries:

- Metropolitan Water District of Southern California
- Santa Clarita Valley Water Agency
- Ventura County Watershed Protection District



that are used to release water from the reservoir. This type of damage may impact DWR's ability to release water to downstream customers. DWR is evaluating seismic retrofits to address the potential operational issues that could result following a major earthquake.

INTERIM RISK REDUCTION MEASURES DURING MODERNIZATION EFFORTS

Modernization efforts will continue for several years due to the complex design and implementation requirements of large retrofit modifications or rehabilitation work to the facilities. DWR has already embarked upon, and completed, several interim risk reduction measures as an integral part of the modernization effort under the CADMP.

These measures include:

- Seismic retrofits to the high intake tower bridge to increase the operational and safety of personnel using the bridge in the event of a major earthquake type event. These retrofits were completed in February 2022.
- Seasonally lowering the water level of Castaic Lake during the winter months will provide more capacity in the reservoir to buffer winter run-off, reducing the likelihood that the spillway would need to be activated. These lower water levels will not impact water supply or recreation activities.
- As construction equipment will be operated in all phases of the modernization program, increased noise and activity at the site may be expected.

HOW TO CONTACT US

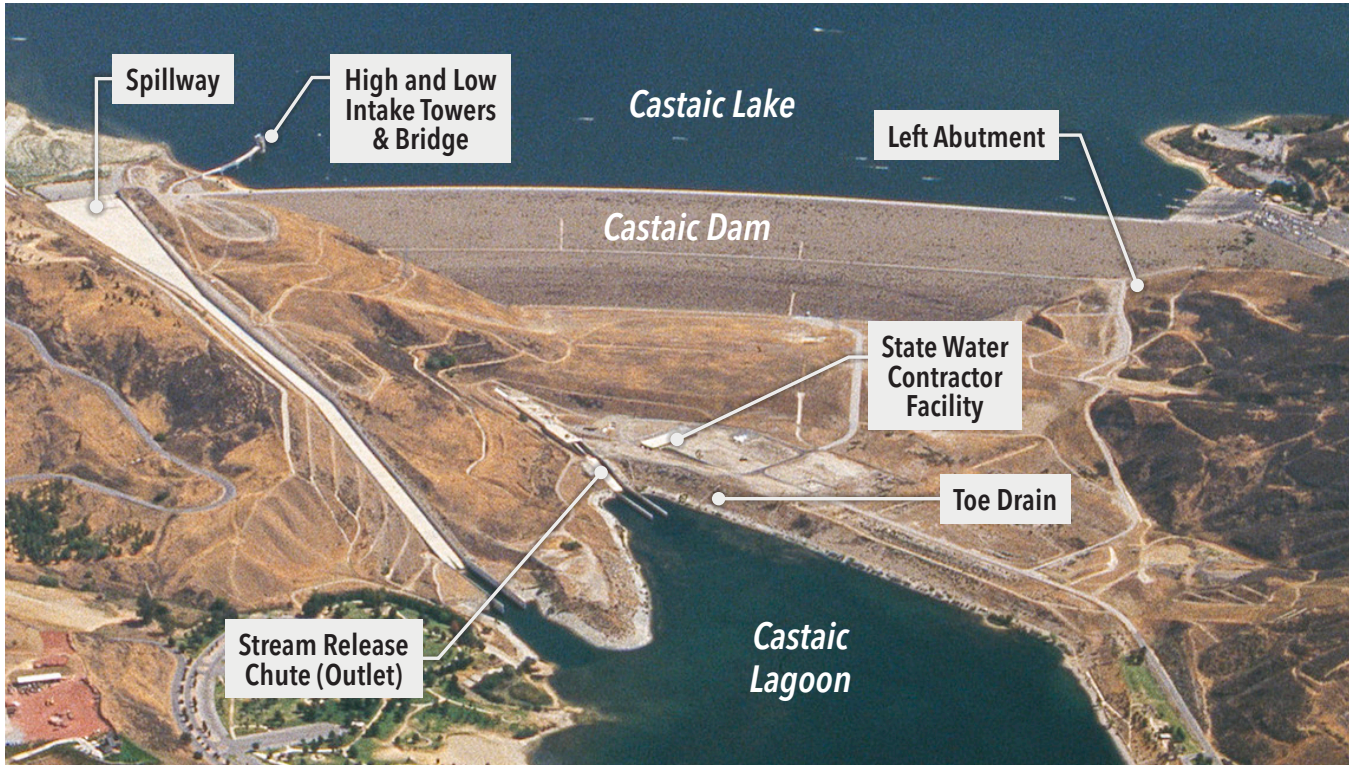
For more information on the Castaic Dam Modernization Program, contact:

SWPdamsafety@water.ca.gov



Dam Components

Castaic Dam



CASTAIC DAM AT A GLANCE

A State Water Project facility providing water supply to 4.8 million Californians



1 DAM

TYPE: Earth Embankment

HEIGHT
↑↓ **425'**

CREST LENGTH
↔ **4900'**

CREST WIDTH
↔ **40'**

CHUTE LENGTH
↔ **5300'**

2 SPILLWAY

TYPE: Ungated Overflow

CREST ELEVATION
↑ **1535'**

CREST LENGTH
↔ **360'**

MAXIMUM OUTFLOW
96,300cfs



SURFACE AREA
2,240
acres

SHORELINE
29
miles

RECREATION
Fishing & Boating

MAXIMUM OPERATING STORAGE CAPACITY
323,700
acre-feet

MAXIMUM OUTFLOW
11,000cfs

3 LAKE

CHUTE LENGTH
↔ **720'**

4 STREAM RELEASE FACILITY

Region Map

Castaic Dam and Surrounding Facilities



Sample Article

What's going on at our local dam?

You may have seen or heard about construction at Castaic Dam and wondered what is going on. Here's a quick overview about the activity.

Castaic Dam and Lake are located 45 miles northwest of Los Angeles and provide water for the greater LA area. The dam was built between 1965 and 1974 and is a part of the State Water Project that is operated and maintained by California Department of Water Resources (DWR).

The construction activity you may see or learn about includes identifying and proactively addressing any issues that could impact the delivery of water or the safety of surrounding communities. DWR launched the Castaic Dam modernization program in 2018 and it will continue for several more years. Activities include assessing the dam and associated structures and managing construction activities to ensure the dam and its structures continue to function safely.

Castaic Dam is safe as currently operated. However, a major event such as an earthquake or massive storm that rapidly fills the reservoir could impact how the dam functions.

Castaic Dam and related structures are regularly assessed by the California Division of Safety of Dams (the dam safety regulatory agency) and by DWR (the dams' owner).

Should the California Division of Safety of Dams determine that the dam is unsafe, DWR will change operations of the dam to reduce flood risk, and local emergency agencies will be notified.

For more information:

<https://water.ca.gov/Programs/State-Water-Project/SWP-Facilities/Southern/Castaic-Dam-Modernization>

Inundation Graphics

Graphics that show a sunny day dam failure inundation area day filed on the California Division of Safety of Dams website. This information is used by emergency management agencies to plan and prepare for emergencies.

<https://fmds.water.ca.gov/maps/damim/>

Additional Resources

More Public Information Resources

(Note to designer: we will work with our team to open and paste the links in full format. These are in the simple format that pop up when we copy them.

The Edelman team)

- [National Dam Safety Awareness Day - Suggested Key Messages](#)-Federal Emergency Management Agency (FEMA) This document contains suggested key messages for National Dam Safety Awareness Day, including messages on the importance of dam safety, knowing your risk, and how to take action.
- [National Dam Safety Awareness Day - Outreach Ideas for Children](#) (FEMA) This document contains National Dam Safety Awareness Day outreach ideas and activities for children to educate them on dam safety. Teaching children about dam safety will not only increase awareness among the next generation, but help to spread information to their families.
- [Flood Preparedness Activity Book for Children](#) (United States Army Corps of Engineers). This fun activity book will help teach youth and their families about the best ways to be prepared for floods.
- [National Dam Safety Awareness Day - Media Coverage Tips](#) (FEMA). This document contains tips for media outreach to increase local awareness and share educational information about National Dam Safety Awareness Day.
- [Living with Dams - Know Your Risks](#) (FEMA). This brochure provides information or those whose life and property could be affected by a nearby dam, including: why communities should care about dams, facts about dams, the risks associated with dams, and what to do if you live in a dam breach inundation zone.
- [Understanding Dam Risks](#) (Association of State Dam Safety Officials). This webpage provides information about the dams, the risks they pose, risk management for dam owners, and ways locals can keep themselves safe.
- [Stay Informed: Dam Failure](#) (READY Ventura County). This site shares dam failure inundation maps, background on the dams in Ventura County, and information for locals on what to do before, during, and after a dam failure.
- [Flood Information](#) (Los Angeles County Public Works). This webpage provides information on the alert networks maps in the Los Angeles region, as well as links to resources on weather forecasting, what to do in a flood, and the National Flood Insurance Program.

Linked Resources

Understanding Dam Risks

<https://www.damsafety.org/public-safety#Understanding%20the%20Risks>

READY Ventura

<https://www.readyventuracounty.org/stay-informed/dam-failure/>

LA County Public Works

<https://dpw.lacounty.gov/wrd/flood/>