

# DAMNATION

## FAQs

### WHAT IS A DAM?

A dam is a barrier constructed to hold back water and raise its level, creating a reservoir. Depending on the type of dam and size of the reservoir these facilities are commonly used to generate hydro power, provide water supply, or offer a means of flood control.

### WHY SHOULD I CARE ABOUT DAM REMOVAL?

Removing dams has proven to be an effective way to restore entire watershed ecosystems, revive wild and sustainable fisheries and associated jobs, protect coastal beaches and wetlands, improve water quality, and improve the lives of adjacent communities and native cultures.

### HOW ARE DAMS REMOVED?

The techniques of dam removal vary greatly due to the different environmental factors, physical features, and construction types of dams. Typically removals include controlled explosions and/or gradual demolition with heavy equipment. Generally, the reservoir is first drawn down, then the sediment is stabilized, transported away, and/or allowed to flow downstream with the river, and finally the dam structure is demolished. Restoration efforts, such as planting native vegetation, are made to help heal the newly exposed dirt within the reservoir area.

### ARE THERE ANY NEW DAMS BEING BUILT PRESENTLY? IF SO, DO THEY MAKE SENSE?

The boom days of dam building in America are decades behind us. The available number of potential dam sites is limited by geography, and the most viable sites have already been developed. Those few remaining areas that have been targeted repeatedly with proposals have met with multiple failures due to poor economics, impractical technology, and the high cost of projected environmental damage. There is a proposal in Alaska to build a large dam on the salmon rich and free-flowing Susitna River—check it out [here](#). With thousands of unsafe and deteriorating dams to address in our country, along with less harmful and less expensive alternatives, building new dams just doesn't make sense.

## WHO IS DOING GOOD WORK ON DAM REMOVAL?

American Rivers is the leading organization fighting for the health of rivers and organizing dam removal projects nationwide. Check out <http://www.americanrivers.org> to learn more.

## WHAT ROLE DO DAMS PLAY IN CLIMATE CHANGE?

Recent studies are showing that dams significantly contribute to global warming. Read [here](#) for more information.

Based on research from the Intergovernmental Panel on Climate Change, over the last 20 years, the warming impact of annual large dam methane emissions is equivalent to 7.5 billion tons of carbon dioxide. By comparison:

- Global CO2 emissions from fossil fuel burning (2004): 26.6 billion tons (2)
- US CO2 emissions from fossil fuel burning (2005): 6 billion tons (3)
- EU-15 emissions from fossil fuel burning (2003): 3.3 billion tons (4)
- Global CO2 emissions from coal (2003): 9.6 billion tons (5)
- US CO2 emissions from coal (2005): 2.1 billion tons (3)
- US CO2 emissions from road transport (2005): 1.7 billion tons (3)
- Global CO2 emissions from aviation (2002): 0.5 billion tons (6)

## WHY BUILD A DAM?

Dams are built for four main reasons: flood control, irrigation, municipal water supply, and power production. Through improved technology and smarter planning, we can provide all four of these needs more effectively and without the negative cultural and ecological impacts of blocking an entire river system with a dam.

## DON'T DAMS PROVIDE CLEAN, GREEN, RENEWABLE ENERGY?

As with the myth of “clean coal”, there is no such thing as “clean hydro power,” with the exception of very small-scale micro-hydro at the individual or neighborhood level. Hydro dams are to water quality and the aquatic dependent environment, what coal fired power plants are to air quality and global climate change. Hydro dams especially, can cause massive fluctuations in downstream flows, and even dewater the stream channel, leading to direct mortality of fish and other species. See this recent article “[Run-of-river power projects kill fish](#)”

## WHO DECIDES TO REMOVE A DAM?

Often a single person or small group takes the initiative needed to bring down a dam, but dam removals can often take decades. The dam owner (private/public utilities, federal/state agencies, etc.) is usually the final decision maker in a dam's removal. In many cases, pressure from local activist organizations, local government, natural resource agencies, and other groups mobilize and encourage the dam owner to remove it. Often, the dam costs more money to maintain and update to current environmental and safety regulations than it does to remove it. Many successful dam removal projects have started with firm opposition from the dam owner and ended with a collaborative partnership where the dam owner and other stakeholders all benefit.

## CAN YOU ALTER OR IMPROVE THE DAM TO MAKE IT LESS HARMFUL?

“Improving” a dam is, at best, a short-term Band-Aid that ignores the root causes of the larger environmental problems affecting a watershed. Improvements do not lead to true recovery for self-sustaining wild fish populations or provide a long-term solution to the many other negative impacts of blocking a river. Examples of ‘improved dams’ for addressing endangered fish populations include those with costly fish elevators, truck-and-haul, fish ladders, and modified water releases. Many of these options require continual annual investment, cause pollution, and result in an artificially enhanced population of fish that can never be taken off of life support. These short-term Band-Aids, like our failing fish hatchery system, often take valuable time and money away from real long-term solutions like replacing dams with more effective options.

A [recent study](#) by ecologists and economists found that high tech fish passage technologies at hydropower dams are ineffective and that dam removal represents the effective solution for both issues. The ideal way to increase or restore fish passage is to allow the natural flow and shape of the stream or river channel to remain or resume—through removal of dams and other obstructions, and by ensuring water

## HOW MANY DAMS ARE THERE IN THE UNITED STATES? HOW MANY ARE POWER PRODUCING?

There are over 80,000 dams 3 feet high or greater in the US, according to the US Army Corps of Engineers' National Inventory of Dams. Out of 80,000 dams, around 2,540 produce hydropower.

## **WHY ARE DAMS BEING REMOVED?**

There is a growing movement to remove dams where the costs – economic, environmental, safety and cultural impacts – outweigh the benefits of maintaining and retrofitting an aging dam. Dams are dated technology and in many cases, cause significantly more problems than they solve. The goal of removing a dam varies case to case but often includes restoring habitat and river flows for fish and other wildlife, reinstating the natural sediment and nutrient flow, eliminating an unsafe dam, restoring whitewater recreation, and saving taxpayer money.

## **WHAT ARE THE MAIN EFFECTS OF A DAM ON A RIVER?**

Dams disrupt flows, degrade water quality, block the movement of a river's vital nutrients and sediment, destroy fish and wildlife habitat, and eliminate recreational opportunities. Reservoirs slow and broaden rivers, making them warmer, reducing water quality, and harboring destructive non-native species that disperse throughout the watershed and prey on and compete with native wildlife. The environmental, economic, and social footprint of a dam and reservoir may run the entire length of the river from the highest mountain peaks that feed the headwaters to the river's delta at the ocean.

## **WHAT ARE THE BEST ALTERNATIVES TO DAMS?**

As new technologies and management practices are successfully implemented, there are a growing number of alternatives to dams. Innovations to reduce water use and waste at the residential, commercial, and agricultural levels can eliminate the need for thousands of water storage dams. Examples include low use water fixtures at home, utilizing reclaimed water, replacing lawns with drought tolerant landscaping, drip irrigation, and planting regionally appropriate crops. Groundwater recharge basins and expanded flood plains along rivers can store and filter water without huge evaporation losses experienced at reservoirs, while improving wetland habitat, recreation, and providing natural flood protection for communities. Energy efficient technologies, adoption of low-impact energy sources such as solar, wind, tidal, wave, geothermal, and biomass are helping us transition to a cleaner energy future allowing more dams to be retired. Even residential size micro-hydro projects, at the very small scale, can be utilized on tiny creeks, upstream of fish migration corridors, in ways that reduce their negative impacts.