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Shasta Dam Enlargement An Expensive & Environmentally Destructive Proposal

The existing Shasta dam and reservoir on California's upper Sacramento, McCloud, and Pit rivers was completed in 1945. It was originally proposed as a much larger dam and reservoir by both state and federal agencies, but cost considerations and economic conditions during the 1930's limited its size. Now the dam engineers are returning to the original proposal in the CALFED program.

CALFED is a joint federal/state program to develop a long term comprehensive plan intended to restore the ecological health and improve water management in the San Francisco Bay/Sacramento-San Joaquin Delta. The CALFED program was largely prompted by the decline of fish and wildlife species in the Delta and its tributaries caused by the massive system of state and federal dams that have harnessed the Central Valley's waterways. Ironically, the CALFED program is essentially proposing to solve an ecological problem caused by dams and water diversions by building yet more dams and water diversions.

CALFED has released a joint environmental impact statement and environmental impact report (EIS/EIR) for public review and comment by June 1, 1998. The CALFED EIS/EIR considers 12 alternatives for the improvement of the Bay-Delta system. Eight of the 12 alternatives propose additional surface water storage and conveyance facilities upstream and downstream of the Delta. One of the 28 surface water storage projects considered in CALFED's technical reports which are not readily available to the public is the proposed enlargement of Shasta dam and reservoir. The intent of the CALFED EIS/EIR is to compare this project against other projects that might be considered as part of a long term CALFED solution for the Bay-Delta system. Unfortunately, the CALFED program gives short shrift to the more efficient use, conservation, and reclamation of our existing water resources as viable alternatives to expensive and environmentally destructive new or enlarged dams. This is underscored best by reviewing the costs -- both economic and environmental -- of enlarging Shasta dam and reservoir.

Two alternatives for the enlargement of Shasta dam and reservoir are considered by CALFED. These include raising the dam by 63 feet or by 200 feet.

	EXISTING DAM	RAISE 63 FEET	RAISE 200 FEET*
Dam Height	602 feet	665 feet	802 feet
Reservoir Elevation	1,068 feet	1,130 feet	1,270 feet
Capacity	4.55 maf**	6.75 maf**	14.3 maf**
Reservoir Area	30,000 acres	37,500 acres	60,500 acres
Design Flow Release	190,000 cfs	333,000 cfs	443,000 cfs
Upper Cost Estimate	\$135.5 million	\$3.2 billion***	\$5.5 billion***

* Raising Shasta dam 200 feet would require the construction of four saddle dams, and the enlargement of the Keswick dam and reservoir downstream.

** maf = million acre feet. *** Does not include all costs. See below. Source: CALFED Storage and Conveyance Components, Facility Descriptions and Cost Estimates, Vol. 2, October 1997.

Environmental Impacts of an Enlarged Shasta Dam & Reservoir

Aquatic Habitat & Species: Up to 42 miles of stream habitat would be inundated, including 16 miles of the upper Sacramento River, 6 miles of the McCloud River, 5 miles of the Pit River, and several tributaries. 53 miles of streamside wetlands would be affected, as well as 29 acres of wetlands adjacent to the existing reservoir. Wild trout production in the McCloud and upper Sacramento rivers would be adversely affected. Several threatened, endangered, or sensitive aquatic species would be affected, including McCloud redband trout, rough sculpin, hardhead, pit roach, river lamprey, Shasta crayfish, Shasta salamander, tailed frog, foothill yellow-legged frog, red-legged frog, northwestern pond turtle, Shasta sideband snail, and vernal pool fairy shrimp. Inundation of several abandoned mine sites in the area could result in toxic mine pollution.

Terrestrial Habitat & Species: Up to 30,000 acres of terrestrial wildlife habitat would be inundated, including 80 percent of the available winter range in the area for deer and elk. This habitat also supports more than 200

species of migratory birds, 50 species of mammals, and several species of reptiles, invertebrates, and amphibians. Several threatened, endangered, or sensitive terrestrial species would be affected, including northern spotted owl, wolverine, Southern bald eagle, peregrine falcon, valley elderberry longhorn beetle, Pacific fisher, ferruginous hawk, northern goshawk, willow flycatcher, tri-colored blackbird, white-faced ibis, California horned lizard, Western spadefoot toad, Siskiyou ground beetle, Trinity Alps ground beetle, and several species of bats. Seven plant species that are candidates for federal protection or are considered rare would be adversely affected.

Human Habitat: Many existing resorts, marinas, and an unknown number of permanent and seasonal residents would be displaced, including houses and commercial businesses at Lakehead, Delta, Riverview, Volmers, and Lamoine. Hundreds of acres of private land would be put underwater. PG&E's Pit River No. 7 hydroelectric project would be inundated. More than 18 miles of Interstate 5 would have to be relocated, requiring four new bridges. More than 34 miles of the Union Pacific railroad would have to be relocated, requiring eight new tunnels and six new bridges. The combined I-5/UPRR crossing at Bridge Bay would require one of the world's longest and most expensive spans for a combined facility. 335 known archeological sites and 126 ethnographic sites would be covered and lost.

National Forest Resources: Portions of the Shasta-Trinity National Recreation Area, providing recreation for more than two million people annually, would be inundated. More than 50 campgrounds, marinas, and resorts would be lost or be relocated. Because of its huge size, the reservoir would seldom fill, but a large and unsightly "bathtub ring" consisting of barren canyon slopes hundreds of feet high would be visible throughout the area. The enlarged reservoir would drown segments of the upper Sacramento and McCloud rivers determined by the Forest Service to be eligible for inclusion in the National Wild & Scenic Rivers System in recognition of outstanding fishery, scenic, geologic, and historical/cultural values. These river segments are renowned for their wild trout fishery and have become increasingly popular for whitewater boating. Portions of three National Forest roadless areas would be inundated, including Devils Rock, West Girard, Dog Creek, and Backbone. Portions of the Shasta-Trinity National Forest managed as reserves for endangered species and for unroaded non-motorized recreation would also be adversely affected.

Downstream Impacts: Highly modified flows from an enlarged Shasta reservoir could adversely impact downstream habitat for several threatened, endangered, or sensitive fish species including winter run chinook salmon, spring run chinook salmon, fall run chinook salmon, late fall run chinook salmon, steelhead trout, Delta smelt, and Sacramento splittail. Increased flows from an enlarged Shasta reservoir could increase bank erosion and threats to existing bridges, structures, agricultural land, and wildlife habitat. Bank erosion could lead to increased bank protection efforts, and loss of riparian habitat which supports several threatened, endangered, or sensitive terrestrial species, including valley elderberry longhorn beetle, bank swallow, Western yellow-billed cuckoo, Swainson's hawk, and others.

Costs: Raising Shasta dam by 63 feet would cost between \$2.5 and \$3.2 billion. Of this amount, Shasta dam and powerplant reconstruction costs account for about 22 percent, and transportation relocation costs account for about 31 percent of the total. Raising Shasta dam by 200 feet would cost between \$4.3 and \$5.5 billion. Of this amount, the dam and powerplant reconstruction costs account for about 28 percent, the necessary enlargement of the Keswick dam and powerhouse downstream account for about 4 percent, and transportation relocation costs account for about 22 percent of the total. Both alternatives require the relocation and expansion of the I-5/UPRR crossing at Bridge Bay, which would cost more than a half billion dollars alone. None of the cost estimates include necessary modifications to the Shasta dam temperature control device, costs of the existing dam and powerplant, compensation for PG&E's lost power generation revenues, environmental studies and mitigation, operation and maintenance, power costs, reservoir filling costs, and interest.

For more information about the CALFED program, call (800) 700-5752. To comment on the CALFED EIS/EIR, contact CALFED for a list of scheduled public hearings and/or send your written comments by June 1 to Lester Snow, CALFED Bay-Delta Program, 1416 Ninth Street - Suite 1155, Sacramento, CA 95814. For more information about the environmental impacts of the proposed enlargement of Shasta dam and reservoir, contact Steve Evans at Friends of the River at (916) 442-3155 Ext. 221, email: sevans@friendsoftheriver.org.



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