

# **Sacramento River Division**

## **Central Valley Project**

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## **Sacramento River Division Central Valley Project**

The Sacramento River Division through its Sacramento Canals Unit added two canals and a dam to the Central Valley Project (CVP). Begun in the 1950s, the Unit included the Corning Canal, Tehama-Colusa Canal and Red Bluff Diversion Dam. The Army Corps of Engineers finished building Black Butte Dam, as a separate project, in 1963. The Black Butte Integration Act of October 23, 1970, brought the dam and reservoir under the auspices of the Sacramento River Division as a the Black Butte Unit.<sup>1</sup>

### **Project Location**

Located north of California's state capital, Sacramento, the Sacramento Canals Unit supplies irrigation water to lands in the Sacramento Valley. Tehama, Glenn, and Colusa Counties are the primary recipients of water from the Unit, but the Tehama-Colusa Canal extends a short distance into Yolo County. The Unit consists of Red Bluff Diversion Dam, Corning Pumping Plant, Tehama-Colusa Canal, and Corning Canal. Reclamation planned Stony Canal, but canceled construction of that feature. Red Bluff Diversion Dam and Corning Canal are in Tehama County. The Tehama-Colusa Canal travels through Tehama, Glenn, and Colusa Counties, into Yolo County. The Black Butte Unit, consisting of Black Butte Dam and Lake, lies across the border of Tehama and Glenn Counties, southwest of Corning Canal's terminus.<sup>2</sup>

### **Historic Setting**

Several groups of Native Americans inhabited northern California prior to the arrival of European settlers. Yahi, Maidu, and Wintun groups inhabited the region around the Sacramento River, now in the Sacramento River Division. Spanish settlers, arriving in the eighteenth century, concentrated their missions along the coast of California. Sparse settlement started in the early 1800s, when the Spanish, and, later; Mexican governments

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1. L. B. Christiansen and R. W. Gaines, *Central Valley Project: Its Historical Background and Economic Impacts*, Bureau of Reclamation, Mid-Pacific Region, Sacramento, July 1981, 7.

2. *Ibid.*, 199-200.

gave large land grants to settlers in the interior of California. Colusa and Glenn Counties had six land grants totaling 156,262 acres. Tehama County had 131,379 acres awarded in seven land grants, but the Sacramento River Basin remained largely unexplored. The first settlers from the United States entered California in the 1840s. The discovery of gold at Sutter's Mill in 1848, brought more American immigrants to the area, especially around Sacramento.<sup>3</sup>

The advance of Americans into northern California eventually resulted in an agricultural boom. The Sacramento Valley attracted many farmers, and many became virtual land barons. Individuals owned farms containing 10,000 to 20,000 acres, and water soon surpassed gold as the most precious commodity in northern California. Sacramento became the capital of California, gaining a certain amount of prominence for the community, and in 1850, the new government wasted no time in turning its attention to the excitement surrounding water.<sup>4</sup>

### **Project Authorization**

The original authorization of the Central Valley Project in 1935, initiated construction of Shasta, Delta, and Friant Divisions. The Sacramento River Division's authorization came a decade and one-half later. Four California Congressmen and Senators pushed for inclusion of the Sacramento Canals Unit in the project. Representative Clair Engle introduced H.R. 163 in January 1949, 81st Congress First Session, initiating a series of legislative maneuvers. The bill supported inclusion of the Sacramento Canals Unit in the Central Valley Project. Representative Hubert Scudder introduced H.R. 126 for the same purpose. Jumping on the bandwagon, the California Legislature passed a resolution asking the Congress and President Harry S. Truman to pass the "Engle-Scudder Bill." Afterward, Senator Sheridan Downey submitted bill S. 693 in support of the Sacramento Canals. The

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3. Henry Thomas Cory, "Sacramento Valley: Early Efforts at Development." *Irrigation in California* (San Francisco: 1918?), 2; Stephen Johnson, Robert Dawson, and Gerald Haslam, *The Great Central Valley, California's Heartland: A Photographic Project by Stephen Johnson and Robert Dawson, Text by Gerald Haslam* (Berkeley: University of California Press, 1993), 30-1.

4. Cory, "Sacramento Valley," *Irrigation in California*, 3, 8; Robert de Roos, *The Thirsty Land: The Story of the Central Valley Project* (New York: Greenwood Press, 1968), 16-7.

California Water Project Authority later joined the fray by endorsing the canals.<sup>5</sup>

In February 1949, Senator William Knowland introduced S. 860 into the Senate, advocating the addition of the Sacramento Canals to the CVP. The California Chamber of Commerce endorsed the Engle-Scudder Bill during the same month. California Governor Earl Warren approved the legislature's resolution in March 1949. The House of Representatives Public Lands Committee unanimously approved H.R. 163 in May. However, the Bureau of the Budget held up the Engle-Scudder Bill in June, until completion of an engineering analysis of the project. The Bureau of the Budget allowed the project, and the House passed the bill in August 1949. President Truman authorized the addition of the Sacramento Canals Unit to the CVP on September 29, 1950.<sup>6</sup>

## **Construction History**

### **Corning Canal**

After authorization of the Sacramento Canals Unit, Reclamation moved toward construction of the Corning Canal to supply water to Corning County. Reclamation awarded the contract to Somers and Stacy of Klamath Falls, Oregon, for \$632,698. The company started construction of Corning Canal in November 1954. Workers completed the canal's first section and 70 percent of the second section by the end of 1955. Corning Canal reached 85 percent completion at the end of 1956. Workers finished the main sections of the Corning Canal on May 2, 1957, except the inverted siphon under the railroad and main highway, and the pumping facilities, for lifting water from the Sacramento River to the headworks of the canal. Workers finished the latter features in July 1959.<sup>7</sup>

After completion, the Corning Canal traveled south from the Corning Canal Pumping

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5. Bureau of Reclamation, *Annual Project History, Central Valley Project, 1949*: Sacramento Valley Division, Record Group 115, 82. Hereafter Record Group 115 cited as RG 115.

6. Reclamation, *Project History, CVP, 1949*: Sacramento River Division, 82, 83; Bureau of Reclamation, *Annual Project History, Central Valley Project, 1950*, RG 115, 2.

7. Bureau of Reclamation, *Annual Project History, Central Valley Project, 1954*, RG 115, 8; Bureau of Reclamation, *Annual Project History, Central Valley Project, 1955*, RG 115, 9; Bureau of Reclamation, *Annual Project History, Central Valley Project, 1956*, RG 115, 4; Bureau of Reclamation, *Annual Project History, Central Valley Project, 1957*, RG 115, 2; Bureau of Reclamation, *Annual Project History, Central Valley Project, 1959*, RG 115, 3; Water and Power Resources, *Project Data*, 201; "Major Recent Contract Awards," *The Reclamation Era*, February 1955, 28.

Plant to the vicinity of Corning city. The Canal is twenty-one miles long and twenty-two feet wide. Corning Canal has a capacity of 500 cubic feet per second.<sup>8</sup>

### **Red Bluff Diversion Dam**

Reclamation awarded the contract for construction of Red Bluff Diversion Dam to Vinnell Corporation in 1962, for \$3,465,155. The dam diverts water from the Sacramento River to the Corning and Tehama-Colusa Canals. The company moved quickly and completed 38 percent of the dam by the end of the year, in spite of a labor strike in June 1962. No further strikes hampered construction. Vinnell had the dam 85 percent complete after the 1963 work season. The contractor completed Red Bluff Diversion Dam on August 9, 1964, 143 days ahead of schedule.<sup>9</sup>

Red Bluff Diversion Dam diverts water to the Tehama-Colusa and Corning Canals. The dam is a gated, concrete, ogee weir with embankment wings located two miles southeast of the city of Red Bluff. The dam stands fifty-two feet high, with eleven gates, and raises the Sacramento twenty-one feet. The crest length of the dam is 5,985 feet.<sup>10</sup>

### **Tehama-Colusa Canal**

Reclamation awarded contracts for construction of Tehama-Colusa Canal to Frederickson and Watson Construction Company and Lord and Bishop, Inc. in 1965. Wittman Contracting Company, American Pipe Company, and Hydro Conduit Company subcontracted the Tehama-Colusa distribution system. Subsequent contracts went to United Nations Constructors, Inc., Rivers Construction Company, Westo Construction Inc., and Purtzer and Dutton. The initial contracts totaled over \$11 million. Groundbreaking ceremonies for the canal took place July 31, 1965. The work schedule called for the completion of the canal, with a total length of 122 miles, in 1979.<sup>11</sup>

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8. Water and Power Resources, *Project Data*, 201.

9. Bureau of Reclamation, *Project History, Central Valley Project, 1962: Construction Progress Reports*, RG 115, 1; Bureau of Reclamation, *Annual Project History, Central Valley Project, 1963: Annual Report*, Central Valley Project, RG 115, 8; Bureau of Reclamation, *Annual Project History, Central Valley Project, 1964: Annual Report*, Central Valley Project, 6; "Major Recent Contract Awards," *The Reclamation Era*, February 1962, 28.

10. Water and Power Resources, *Project Data*, 199, 201.

11. Bureau of Reclamation, *Annual Project History, Central Valley Project, 1965: Construction Progress Reports*; Tehama-Colusa Canal, December 1965, RG 115, 3; Water and Power Resources, *Project Data*, 199;

(continued...)

Reclamation awarded the contract for fish facilities on the Tehama-Colusa Canal to Gibbons and Reed Company, Jelco, Inc.; and Clyde W. Wood and Sons, Inc. in 1969. The facilities consisted of a drum screen complex, to keep fish out of the dual-purpose canal, and a single-purpose spawning channel traveling parallel to the main canal for a short distance. The contractors completed the fish facilities on July 8, 1971. The canal contractors completed Reaches Six and Seven on Tehama-Colusa on April 20 and July 3, 1979, respectively. Reclamation accepted Reach Eight, the final section of the canal, as complete on May 30, 1980. Upon completion the canal stretched 111 miles, 11 miles shorter than originally intended. The Tehama-Colusa Canal travels south from Red Bluff Diversion Dam through Tehama, Glenn, Colusa Counties, and into Yolo County.<sup>12</sup>

### **Pumping Plants**

Six pumping plants eventually operated on the Sacramento Canals Unit (see Table. D). Five of the plants fed water to the Colusa County distribution system from the Tehama-Colusa Canal. The Corning Pumping Plant diverted water from the Sacramento River to the Corning Canal at Red Bluff Diversion Dam. Reclamation awarded the contract for the Corning Pumping Plant to Hood Construction Company and F. W. Case, Corporation, of Whittier, California, on June 19, 1959. Construction of the plant began shortly after. During the work season the contractors excavated and laid the foundation, raised the concrete walls, and installed the discharge lines. The contractor continued making good progress on the pumping plant in 1960, and completed the pumping plant and intake channel in November 1960.<sup>13</sup>

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11. (...continued)

Reclamation, *Project History, Central Valley Project, 1964*: Annual Report, Central Valley Project, RG 115, 6; "Major Recent Contract Awards," *The Reclamation Era*, February 1966, 28; "Major Recent Contract Awards," *The Reclamation Era*, May 1966, 56; "Major Recent Contract Awards," *The Reclamation Era*, November 1967, 112.

12. Bureau of Reclamation, *Annual Project History, Central Valley Project, 1971*: Sacramento River Division, RG 115, Section I: Project Highlights; Photo P602-200-5745 6/10/74, Photo P;602-200-5621, Construction Progress Report: June 1971, 4; Water Education Foundation, *Layperson's Guide to the Central Valley Project* (Sacramento: Water Education Foundation), 10; Bureau of Reclamation, *Annual Project History, Central Valley Project, 1979: Sections I, II, and III*, RG 115, 128; Bureau of Reclamation, *Annual Project History, Central Valley Project, 1980: Sections I, II, and III*, RG 115, 105; Water and Power Resources, *Project Data*, 199, 201.

13. Bureau of Reclamation, *Annual Project History, Central Valley Project, 1959*, RG 115, 3; Bureau of Reclamation, *Annual Project History, Central Valley Project, 1960*: Annual Report, Central Valley Project, RG 115, 13; "Major Recent Contract Awards," *The Reclamation Era*, August 1959, 84.

## Black Butte Unit--Black Butte Dam

Congress authorized the Army Corps of Engineers to construct Black Butte Dam, on Stony Creek, in the Flood Control Act of 1944. The project virtually disappeared until

<u>Pumping Plant</u>	<u>Number of Units</u>	<u>Total Capacity</u>
Corning Canal	6	477 cub. ft./sec.
Colusa Co. Water Dist. 2A	7	84 cub. ft./sec.
Colusa Co. Water Dist. 2A1	6	83 cub. ft./sec.
Colusa Co. Water Dist. 2B	6	83 cub. ft./sec.
Colusa Co. Water Dist. 2C	6	85 cub. ft./sec.
Colusa Co. Water Dist. 2D	5	24.6 cub. ft./sec.

**Table I.** Pumping Plants and capacities on the Sacramento Canals Unit-Sacramento River Division. Source: Water and Power Resources, *Project Data*, 202.

a flood on Christmas Day 1955, and another in 1958. Residents of Butte, Tehama, and Colusa Counties joined with residents of Glenn County in clamoring for flood relief from the California government. California guaranteed money for the project's repayment, appropriating several million dollars, and the Corps of Engineers proceeded. Initial work started in March 1960, and work on the dam concluded in December 1963. The Black Butte Integration Act of October 1970, made Black Butte Dam part of the Central Valley Project. Black Butte Dam mainly provides flood control, but does supply some surplus water to the Sacramento Canals Unit and the Orland Project for irrigation.<sup>14</sup>

### Division Operation

The Sacramento Canals Unit primarily receives its water supply from the Sacramento River through releases from Shasta Dam and its afterbay, Keswick Dam and Reservoir. Some water comes from the Trinity River, in the Klamath River Basin, via the Trinity River Division. Water diverted from the Trinity River enters the Sacramento River Basin at Keswick Reservoir, from which Reclamation releases it into the Sacramento River. Red

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14. Joseph J. Hagwood, Jr., *Commitment to Excellence: A History of the Sacramento District, U.S. Army Corps of Engineers, 1929-1973*, U.S. Army Engineer District, Sacramento, 1976, 178; Christiansen and Gaines, *Central Valley Project: Its Historical Background and Economic Impacts*, 7; Bureau of Reclamation, "Central Valley Project: North Half, California," Map no. 214-208-4174, Bureau of Reclamation, Mid-Pacific Region, Sacramento, May 1988.



Bluff Diversion Dam diverts water from the Sacramento to the Corning Pumping Plant and into Corning and Tehama-Colusa Canals for distribution in Tehama, Glenn, Colusa, and Yolo Counties. Supplemental water from Black Butte Lake enters the Sacramento River in Glenn County via Stony Creek.

### **Post-Construction History**

Red Bluff Diversion Dam drew little notice during its construction and for at least a decade after. Controversy over the dam's effect on migratory fish soon brought the dam to the forefront of California's consciousness. The population of winter-run chinook salmon, at Red Bluff Diversion Dam, peaked in 1969, numbering about 118,000. After 1969, the populations of migratory salmon and steelhead trout on the Sacramento steadily declined. The salmon population dropped to less than 5 percent of the 1969 total. The dam blocked the Sacramento River, preventing the fish from moving upstream to their normal spawning grounds.<sup>15</sup>

Fish ladders and subsurface openings in the dam alleviated the migration problem, but led to another, predatory fish. Environmentalists equated salmon traveling through the subsurface openings, downstream through the dam, to putting the fish in a washing machine, disorienting the salmon when they get clear into the river. The disoriented fingerling salmon became easy prey for squawfish, which often lined up on the downstream side of Red Bluff Dam to feast on the small fish.<sup>16</sup>

In 1987, Reclamation began opening Red Bluff Dam's gates yearly, from December 1 until April 1, for the winter-run salmon returning to spawn at Shasta Dam. Inclusion of the winter-run chinooks on the listing of threatened species by the National Marine Fisheries Service (NMFS), prompted Reclamation to take further action. Reclamation completed a \$17 million renovation of the dam in March 1990. The improvements included a temporary

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15. Steve Parker, "Panel to Advise on Fish Passage," *Red Bluff Daily News*, 21 July 1994, 1, 6; Bureau of Reclamation, *Red Bluff Diversion Dam Fish Passage Program: An Update of Red Bluff Planning and Public Involvement Activities, Update No. 1*, Bureau of Reclamation, July 1994, 4.

16. Jim Dyar, "Dam Gates Give Salmon Real Problem," *Redding Record Searchlight*, 14 July 1994, in Bureau of Reclamation News Clips.

fish ladder in the center of the dam for passage when the gates remained closed. Renovations did not immediately boost the chinook population. In 1991, the adult, winter-run chinook count reached a record low of only 191 at Red Bluff Diversion Dam. The population gained in 1992 and 1993, with counts of 1,180 and 341 respectively. The NMFS redesignated the winter-run chinook as endangered in December 1993.<sup>17</sup>

Red Bluff Diversion Dam diverted irrigation water into Tehama-Colusa and Corning Canals. The diversion capacity of the first sections of the two canals totalled 3,030 cubic feet per second. The drum screen structure, constructed 1969-71, prevented fish passing through the headworks from entering the canals. A bypass system returned the fish to the river. In accordance with an agreement with the U.S. Fish and Wildlife Service, Reclamation placed gravel beds along the upper 3.2 miles of the Tehama-Colusa Canal to simulate natural spawning beds. The artificial spawning beds failed to work as planned, and the canal headworks still trapped young fish.<sup>18</sup>

Reclamation developed several alternatives to protect salmon at Red Bluff Diversion Dam. Alternative 4A (Large Pump) would essentially end usage of the dam. The plan called for utilization of a pumping plant to make water diversions, and leave the dam's gates open, to make the river free flowing again. Alternative 4B (Small Pump) would close the gates during the peak summer months, mid-May to mid-July, keeping them open the rest of the year, and using a small pump to assist in diverting the water to the canals. Alternative 3A4 (Small Ladder) planned to increase the flow capacity of the left and right fish ladders and add a permanent fish ladder to the center of the dam. Alternative 3C4 (Large Ladder) called for modification of the right fish ladder for greater flow capacity and addition of a permanent center fish ladder. The plan would replace the left fish ladder with a "state-of-

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17. Water Education Foundation, *Layperson's Guide to the Central Valley Project*, 10; Reclamation, *Red Bluff Diversion Dam Fish Passage Program*, 4-5.

18. Water Education Foundation, *Layperson's Guide to the Central Valley Project*, 10; Bureau of Reclamation, *Program Plan of Study: For Planning Studies, Supplemental Data Development, and Pilot Pumping Plant Evaluation, Red Bluff Diversion Dam Fish Passage Program (Draft)*, Bureau of Reclamation, Mid-Pacific Region, MP-720, April 1993, 8-9.

the-art fish ladder."<sup>19</sup> By the end of 1994, Reclamation had not decided on which plan to use. Residents of Red Bluff became concerned that some of the proposed alternatives for protecting the salmon, would alter the recreation potential of Lake Red Bluff, behind Red Bluff Diversion Dam, and discourage travelers along I-5 from stopping at Red Bluff city, thereby effecting the community's recreational revenue.<sup>20</sup>

### **Settlement of the Project**

In 1943, the nine Sacramento Valley counties had 7,500 farms. The Sacramento Valley District farm population reached 45,000 in 1946. Counties in the Sacramento Canals Unit increased in population by 66 percent, from 70,000 in 1930, to 115,000 in 1948. After completion of the Corning Canal irrigable acreage in the canal's service area reached 1,852, with ten farms and a population of thirty-three in 1961.<sup>21</sup>

Several counties in the Sacramento Canals Unit had somewhat sparse populations, when compared with other California counties. Tehama County had a population of 49,625 in 1990. Colusa County only had 16,275 inhabitants, and Glenn county had 24,798 residents in 1990. Unlike the less populated counties, Yolo County, at the end of the Tehama-Colusa Canal, had a 1990 population of 141,092. Red Bluff, in Tehama County, had 12,363 residents, while Colusa had 4,934. Sacramento provided a metropolitan atmosphere in the region with 369,365 inhabitants in 1990. Lands served by the Corning Canal had a population of 762 in 1990, with 512 living on farms. The Tehama-Colusa Canal had a 1990 farm population of 1,101.<sup>22</sup>

Black Butte Dam, Lake, and recreational facilities remained under the operational control of the Army Corps of Engineers. The Sacramento Canals Unit-Central Valley

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19. Bureau of Reclamation, *Red Bluff Diversion Dam, Status Report*, Bureau of Reclamation, Mid-Pacific Region, Sacramento, July 1993, 23.

20. Reclamation, *Red Bluff Diversion Dam, Status Report*, 29; Reclamation, *Program Plan of Study*, 8-9.

21. Bureau of Reclamation, *Annual Project History, Central Valley Project, 1943: Part I*, RG 115, 59; Bureau of Reclamation, *Annual Project History, Central Valley Project, 1946: Part I*, RG 115, 14; Bureau of Reclamation, *Annual Project History, Central Valley Project, 1948: Part I*, RG 115, 50; Bureau of Reclamation, *Annual Project History, Central Valley Project, 1961*, RG 115, Crop Production and Water Reports.

22. Department of Commerce, Bureau of the Census, *Twenty-First Census of the United States, 1990: Population and Housing*, Bureau of the Census, 1990, on CD-ROM; Bureau of Reclamation, *Crop Production Report-1990*, Bureau of Reclamation, 1990, 473.

Project Operations Watermaster directed water releases from the dam, for any reason other than flood control. Black Butte Dam mirrored other segments of the CVP; it remained part of the project, but existed in a state of detachment or independence from the other units in the Sacramento River Division, much like the Sly Park Unit of the American River Division.<sup>23</sup>

### **Uses of Project Water**

Before construction of the Sacramento Canals Unit, over 45,000 acres in the Division's future service area received irrigation. Division lands grew a variety of crops by 1990 (see Tables. II and III). In 1989, Tehama-Colusa and Corning Canals provided water for 100,019 acres on which \$88,529,000 worth of crops grew. Primary crops in the Division consisted of almonds, rice, corn, wheat, alfalfa, seeds, irrigated pasture, beans, sugar beets, tomatoes, and orchard fruits. The Tehama-Colusa Canal supplied water for 20,000 acres of the Sacramento Valley (wildlife) Refuges in 1989. Meanwhile, recreation remained active on Lake Red Bluff. Sailors, jet skiers, and water skiers used the lake, and Lake Red Bluff hosted an annual drag boat race.<sup>24</sup>

### **Conclusion**

Concerns for the environment raised serious questions about facilities on the Central Valley Project in the 1980s and 1990s. Red Bluff Diversion Dam became the focus of many of the concerns. Despite the environmental problems faced by Red Bluff Diversion Dam, the Sacramento River Division continued to produce valuable crops. Crop production reports for the lands served by the Tehama-Colusa and Corning Canals exhibit why Central Valley is the richest farm producer of the Reclamation projects.

### **About the Author**

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23. *Black Butte Dam and Lake Stony Creek, California Water Control Manual, Appendix III to Master Water Control Manual, Sacramento River Basin, California*, U.S. Army Engineer District, Corps of Engineers, Sacramento, May 1987, I-3.

24. Reclamation, *Program Plan of Study*, 8; Bureau of Reclamation, *Land Use Appendix: Tehama-Colusa Service Area*, Sacramento Canals Unit, Sacramento River Division, Central Valley Project, Sacramento, July 1955, Supplemental Data, 1959, 8. Reclamation, *Program Plan of Study*, 9.

Eric A. Stene was born in Denver, Colorado, July 17, 1965. He received his Bachelor of Science in History from Weber State College in Ogden, Utah, in 1988. Stene received his Master of Arts in History from Utah State University in Logan, in 1994, with an emphasis in Western U.S. History. Stene's thesis is entitled *The African American Community of Ogden, Utah: 1910-1950*.

**Table I.** Crops and crop values on Corning Canal lands in 1990.

Source: Bureau of Reclamation, *Crop Production Report: 1990*, 398-400.

<u>Corning Canal</u>		
<u>Crops</u>	<u>Acres</u>	<u>Total Crop Value \$</u>
Corn	116	48,566
Oats	40	6,240
Rice	1084	435,215
Wheat	423	121,913
Alfalfa Hay	494	240,040
Other Hay	310	57,775
Irrigated Pasture	1373	159,084
Beans, dry & edible	90	53,460
Sugar Beets	70	62,720
Clover	184	123,508
Grapes	10	11,500
Olives	1265	1,461,074
Peaches	13	23,400
Prunes & Plums	671	1,258,740
Other Fruits	120	506,700
Almonds	578	1,659,920
Walnuts	15	17,100
Total	6,856	6,246,945

**Table II.** Crops and crop values on Tehama-Colusa Canal in 1990.Source: Bureau of Reclamation, *Crop Production Report: 1990*, 474-6.

<u>Crops</u>	<u>Acres</u>	<u>Total Crop Value \$</u>
Corn	1,597	986,516
Oats	6	703
Rice	6,582	3,139,306
Sorghums	333	80,986
Wheat	11,768	3,352,814
Other Cereals	96	57,369
Alfalfa Hay	11,008	6,446,453
Other Hay	252	64,125
Irrigated Pasture	4,570	531,751
Silage or Ensilage	331	180,202
Beans, dry & edible	3,258	1,583,343
Sugar Beets	2,856	2,595,860
Other Misc. Field Crops	829	1,068,202
Broccoli	15	17,160
Carrots	7	14,102
Cauliflower	15	25,216
Corn, sweet	123	250,920
Melons, Cantaloupe etc.	70	100,989
Peas, green (processing)	130	105,300
Tomatoes, canning	5,531	8,726,305
Alfalfa	1,550	814,704
Clover	397	160,500
Onion	24	47,028
Pea	18	17,325
Other Seed	5,326	3,335,527
Apricots	146	312,225
Cherries	2	9,800
Oranges & Tangerines	527	795,138
Grapes, other than table	2,339	1,486,310
Olives	690	1,487,340
Pears	48	125,820
Prunes & Plums	778	1,592,890
Other Fruits	9	5,841,143
Almonds	21,082	76,296,000
Pecans	122	100,650
Other Nuts	155	711,620
Family gardens & orchards	54	27,000
Total	82,577	116,710,319

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