RECLAMATION DISTRICT 108

HISTORY AT A GLANCE

1868
Assemblyman Will Green of Colusa introduces a bill to allow formation of Reclamation Districts

1870-1880
Litigation over formation of District and assessment authority

1890 - 1910
Developing a drainage system

1860's

1870's

1880's

1890's

1900's

1870
Landowners petition for formation of Reclamation District No. 108

1870-1890
Construction of Sacramento River levee
• Knights Landing to Jacinto

1930's
Over 50% of lands sold for delinquent distress

1918
Developing the irrigation system

1914
Installation of main drain pumps

1920's

1910's

1930's

1925
Issuing bonds for irrigation systems

1915
Last interior flooding

1965 - 1980
Tehama-Colusa Canal Construction

1970's
Install water reuse & 30+ miles of canal lining

1950's
Negotiation for U.S. Bureau of Reclamation water rights contract

1940's
District recovers from economic distress

1940's

1950's

1960's

1970's

1964
Contract with U.S. Bureau of Reclamation signed

2008
Poundstone combined Pumping Plant and Fish Screen installed

1992
CVPIA mandates changes in management of the Central Valley Project

2018
Construct Knights Landing Outfall Gates Adult Fish Barrier

2005
Renewed Water Right Contract with U.S. Bureau of Reclamation signed

1980's

1987
TCCA formed as a Joint Powers Authority

2019
Begin fish food program

2010's

2000's

1990's

2020
Construct Wallace Weir Fish Rescue Facility

2010
Solar power plant installed

1999
Wilkins Slough Fish Screen installed

CELEBRATING
150 Years

108 RECLAMATION DISTRICT

RECLAMATION DISTRICT 108

CALIFORNIA'S DEVELOPMENT

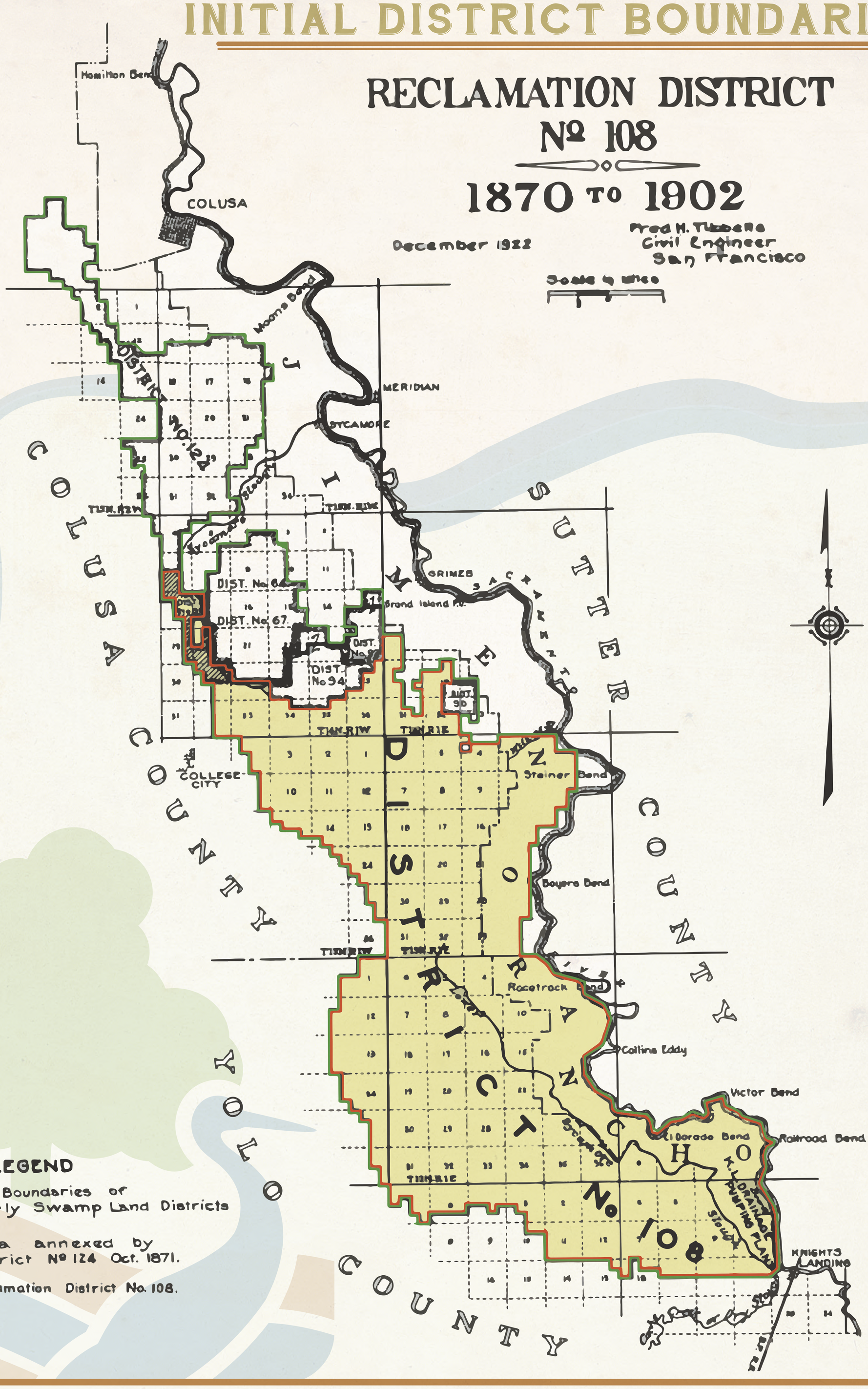
- California was sparsely populated in 1850, when it became the 31st state of the US.
- The 1850 Act of Congress provided that swamp and overflow lands be “reclaimed” for productive use, hence the “Reclamation District”.
- Will S. Green was elected to the State Legislature in 1868 and fought to revise the State’s “Swamp Land Act” which made reclamation of the Sacramento Valley and Delta possible.
- Reclamation District No. 108 was legally formed by the Yolo County Board of Supervisors on September 28, 1870.
- Reclamation District No. 108’s first Board Meeting was held on October 4th, 1870 with trustees A.H.Rose, Charles F. Reed (son-in-law of William Knight), and L.A. Garnett was held at 416 Montgomery Street in San Francisco.
- In 1850 the California population was less than 100,000.
- By 1860 California’s population had grown to almost 400,000.

- As gold mining waned in the 1850's and 1860's, farming took center stage.
- California soon became an exporter of wheat that was produced on large acreage farms.
- Completion of the transcontinental railroad in 1869 integrated the California economy into that of the US.
- California agriculture was a leader in mechanization.

- Many farmers had large acreages, capital and were well educated.
- Early wheat farmers learned that they could use large plows to turn over only a few inches of topsoil.
- They encouraged local inventors to develop plows that could cover far more acres in a day than in the rest of the US.
- Dry summers with little threat of rain allowed wheat to be harvested by combine sooner in California than in the Midwest.

RECLAMATION DISTRICT 108

INITIAL DISTRICT BOUNDARIES



DISTRICT BOUNDARIES

CELEBRATING 150 Years

108 RECLAMATION DISTRICT

RECLAMATION DISTRICT 108

BUILDING THE LEVEES

- The first levee extended 40 miles from Knights Landing to Upper Sycamore Slough.
- Initial construction cost $120,000 ($2.5M in today's dollars) and was completed in 1871.
- By 1880, landowners had spent $450,000 ($13 million in today's dollars) constructing levees.
- The total by 1915 amounted to over $1.5 million ($41.4 million in today's dollars) all before there was any contribution from state or federal funds.

LEVEE CONSTRUCTION WITH SUCTION DREDGE "NATOMAS" OPPOSITE MINISTERIAL BEND. SEPTEMBER 26,1915

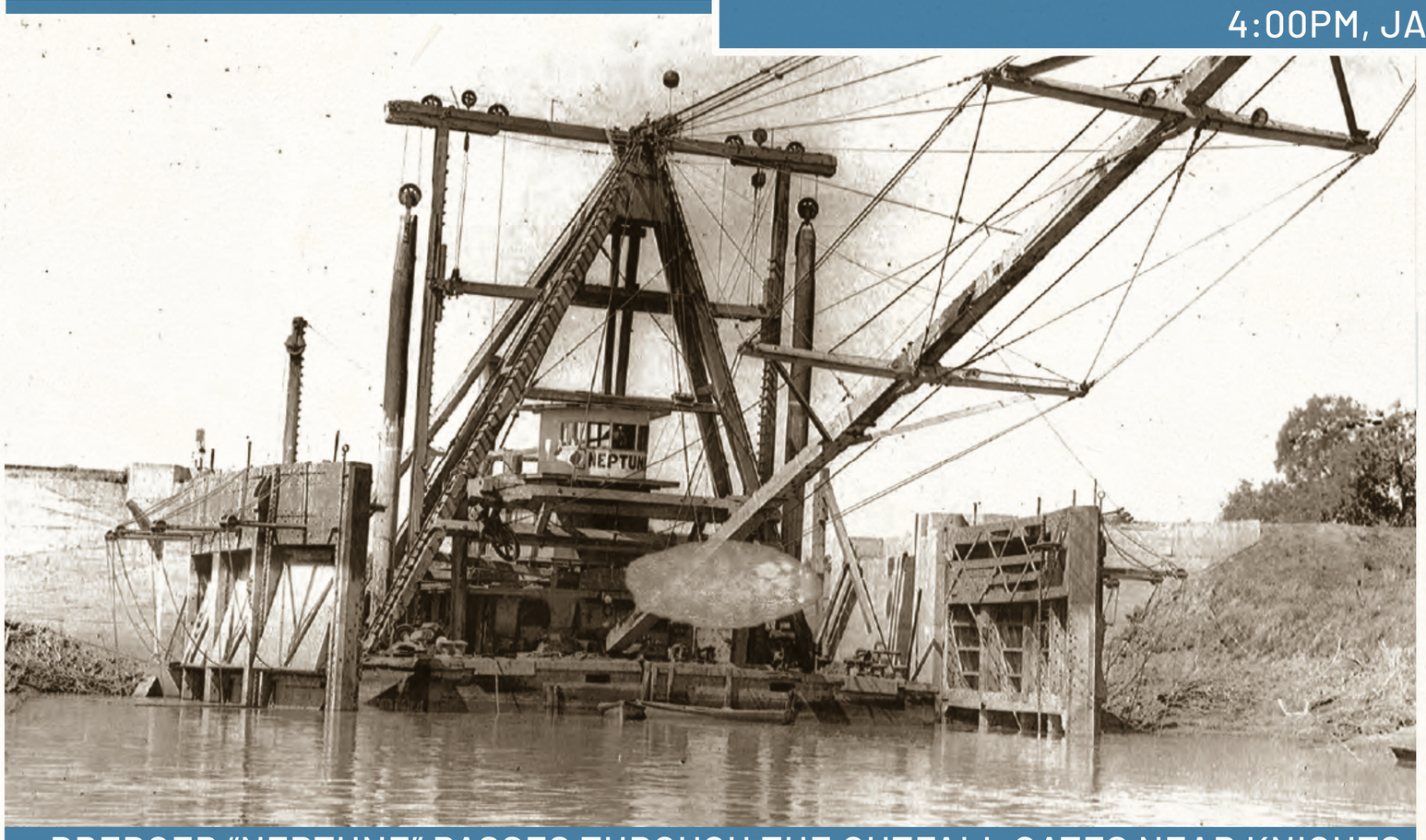
- The District went beyond its boundaries to improve flood control, reaching just west of Chico, to prevent upstream breaks from inundating the District.
- In 1889, the District bought the land on the east side of the river for what is now the Tisdale Bypass to reduce pressure on its levees.
- Anticipating the future federal flood control project, the District also bought land for the Colusa Bypass and helped create the Moulton Bypass supporting the concept that levees alone could not contain Sacramento River flows.

RECLAMATION DISTRICT 108

WATCHING THE BACK DOOR

- There were many proposals and plans to protect against flooding from the west.
- In 1890, the first proposal was to build a drainage canal from Hamilton Bend to Knights Landing.
- Finally, the “Back Levee” was authorized in 1903; a southerly extension of the Howell Point Levee.
- To reduce construction costs, the District had its own dredge, the Jimeno, built in Stockton.
- By 1912, 4 large clamshell dredges were working on the Back Levee.
- The Back Levee resulted in deeper flooding west of the District, in the Colusa Basin.
- In 1912, Yolo County Superior Court required a weir be built in the Back Levee to lower flood depths to the west.
- In 1914 and 1915, water spilled into the south end of the District over the weir.
- 1915 would be the last time the interior of the District would flood.

LOOKING WEST. WATER FROM COLUSA BASIN ON THE LEFT, FLOWING INTO THE DISTRICT OVER THE WEIR IN THE BACK LEVEE. ABOUT 15,000 ACRES IN SOUTHERN PORTION OF DISTRICT SUBMERGED. 4:00PM, JANUARY 8, 1914



DREDGER “NEPTUNE” PASSES THROUGH THE OUTFALL GATES NEAR KNIGHTS LANDING ENTERING THE RIVER. JUNE 1917

RECLAMATION DISTRICT 108

CUTTING THE RIDGE

DREDGE "JIMENO" ENLARGING OPENING THROUGH DAM AT HEAD OF RIDGE CUT. 4:30PM, FEBRUARY 22, 1915

- The Knights Land Ridge, high ground created by sediment overflow from Cache Creek, was a major obstacle to reclamation of the Colusa Basin.
- The only outlet for the Colusa Basin was an opening in the river bank at Lower Sycamore Slough, however the slough was more effective in spilling floodwater from the river into the lower Colusa Basin.
- In 1909, Yolo County Superior Court stopped an attempt to 'Cut' the Ridge to release floodwater from the Colusa Basin into the Yolo Basin.
- In 1912, Judge Hawkins ordered landowners to work together to build a leveed Cut through the Ridge, connecting the Colusa Basin to the Yolo Bypass.
- To accomplish this, the Knights Landing Ridge Drainage District was formed in 1913.
- An assessment of $800,000 ($23M in today's dollars) was levied in 1914 over 71,000 acres.
- The Ridge Cut was completed in 1916.
- The Back Levee weir was removed in 1916.
- District levees have not been topped or breached since.

OPENING UP DAM AT HEAD OF RIDGE CUT-ABOVE 50-100 SEC. FT. FLOWING THROUGH. 11:00AM, FEBRUARY 22, 1915

RECLAMATION DISTRICT 108

SISTER DISTRICTS

- From its inception, RD108 had provided levee improvements and maintenance beyond its boundaries.
- The 1912 Judge Hawkins "order" not only directed landowners north and south of the Knights Landing Ridge to form a district, but also suggested the formation of a second district to spread the cost of maintaining levees on the Sacramento River extending upstream to Colusa.
- Formation of the Sacramento River West Side Levee District resulted in all landowners receiving flood protection benefits proportional to their financial contribution.

BROWNING BREAK ON THE RIVER AT PICNIC GROUNDS ABOVE GRIMES, OUTSIDE RD108, BUT SPILLING INTO THE DISTRICT. 3:40PM, FEBRUARY 4, 1915

1915 SACRAMENTO RIVER FLOOD, "DOLAN BREAK" ABOUT TWO MILES BELOW COLUSA. OUTSIDE DISTRICT BOUNDARY, BUT SPILLING INTO DISTRICT. 9:30AM, FEBRUARY 1915

- The February flood of 1915 was the straw that broke the camel's back with three large levee breaks north of the District which meant more levee improvements would be needed outside of the District.
- In 1915, the State Legislature created the Sacramento River West Side Levee District by special act to maintain 52 miles of levees from Colusa to Knights Landing.
- Along with the Knights Landing Ridge Drainage District, the Sacramento River West Side Levee District shares staff and offices with RD108.

RECLAMATION DISTRICT 108

FLOOD CONTROL TODAY

- RD108, Sacramento River West Side Levee District and Knights Landing Ridge Drainage District, together maintain over 90 miles of levee, providing flood protection to over 115,000 acres of land.
- Landowners continue to support the Districts' ongoing levee maintenance efforts through property assessments. The 2022 annual levee maintenance budget for all three Districts combined is almost $4M, with almost $600,000 of that funding coming from State grants.
- Over the last 8 years the Districts have secured over $40M in State and Federal funding to improve the Districts' levees.
- Over the next five years, the Districts are hoping to receive another $30M in State and Federal funding for additional levee improvements.
- RD108 has been the leader in developing a new regional approach to flood emergency planning and has secured over $3M in State funding to bolster the region's flood emergency response efforts. This funding has been used for planning, training, and to purchase and stockpile floodfight materials.

SEEPAGE BERM CONSTRUCTION, 2018

FLOOD EMERGENCY RESPONSE EXERCISE WITH STATE & FEDERAL AGENCIES, BEING LED BY RD108

PIPE REPLACEMENT KNIGHTS LANDING RIDGE CUT 2019

RD108 STAFF RECEIVING FLOOD FIGHT TRAINING

SETBACK LEVEE UPSTREAM OF KNIGHTS LANDING, 2022

FLOOD & DRAINAGE

CELEBRATING 150 Years

108 RECLAMATION DISTRICT

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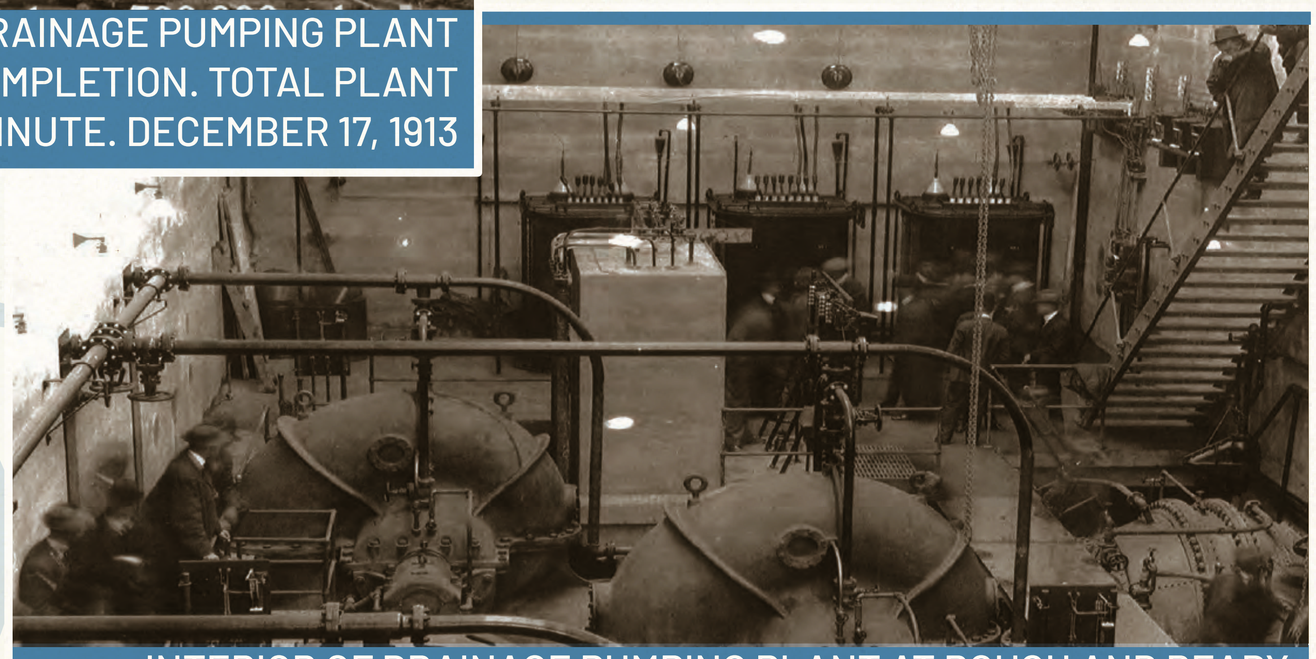
BUILDING A DRAINAGE SYSTEM

- A drainage system was needed to drain rainfall, irrigation, and potentially floodwaters.
- In 1885, Steam Driven pumps were installed at the lower end of Sycamore Slough.
- In 1911, Rough and Ready drainage plant was built.
- In 1914, its first major test was removal of water from 18,000 acres covered with 3 feet of water. The water was pumped out in 7 days, half the time engineers had estimated it would take.
- The pumping plant was improved in 1916 and 1917.
- The El Dorado Pumping plant was originally built by RD 2047, but taken over by RD108 in the early 1930's.
- District's drainage system now encompasses over 300 miles of drainage channels covering 80 square miles.
- The addition of new drainage reuse facilities allows for reuse of 100% of the District's summer irrigation runoff.

PUMP CASING BEING MOVED INSIDE DRAINAGE PUMPING PLANT AT ROUGH AND READY AS IT NEARS COMPLETION. TOTAL PLANT CAPACITY OF 300,000 GALLONS PER MINUTE. DECEMBER 17, 1913



INTERIOR OF DRAINAGE PUMPING PLANT AT ROUGH AND READY SHORTLY AFTER COMPLETION. PLANT CONSISTS OF FIVE 44" CENTRIFUGAL PUMPS CONNECTED TO 600 HP MOTORS. MARCH 1914

RECLAMATION DISTRICT 108

DEVELOPING IRRIGATION

INITIAL TEMPORARY PUMPING PLANT AT WILKINS SLOUGH. JULY 21, 1918

WILKINS SLOUGH PUMPING PLANT INTAKE SUCTION PIPES AND GATES. AUGUST 12, 1927

- In 1917, a law was enacted allowing Reclamation Districts to distribute irrigation water.
- RD108's application to divert from the Sacramento River was filed almost immediately.
- Of the nearly 100 RDs in the State, only 4 others also deliver irrigation water.
- In 1917 a contract was issued to construct the Wilkins Slough Pumping Plant.
- By 1920 it was fully operational.
- Despite its strong water right, an adequate supply was not always physically available.
- In 1931 the Sacramento River was so low, a dirt dam was built in the river at Wilkins Slough to back up water for pumping.
- The District continues to modernize the irrigation system with new infrastructure and technologies.

IRRIGATION LATERAL UNDER CONSTRUCTION THROUGH BROWNING RANCH. APRIL 2, 1926

CELEBRATING 150 Years

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RECLAMATION DISTRICT 108

IRRIGATION SYSTEM MODERNIZATION AND AUTOMATION

SACRAMENTO RIVER DIVERSION STATIONS WITH POSITIVE BARRIER FISH SCREENS AT WILKINS SLOUGH AND POUNDSTONE

MODERN RUBICON FLUMEGATE ™

- Battery-operated overshot gates can operate autonomously while collecting and transmitting measurement data for remote viewing.
- Flume Gates regulate nearly 40 miles of concrete-lined canals.

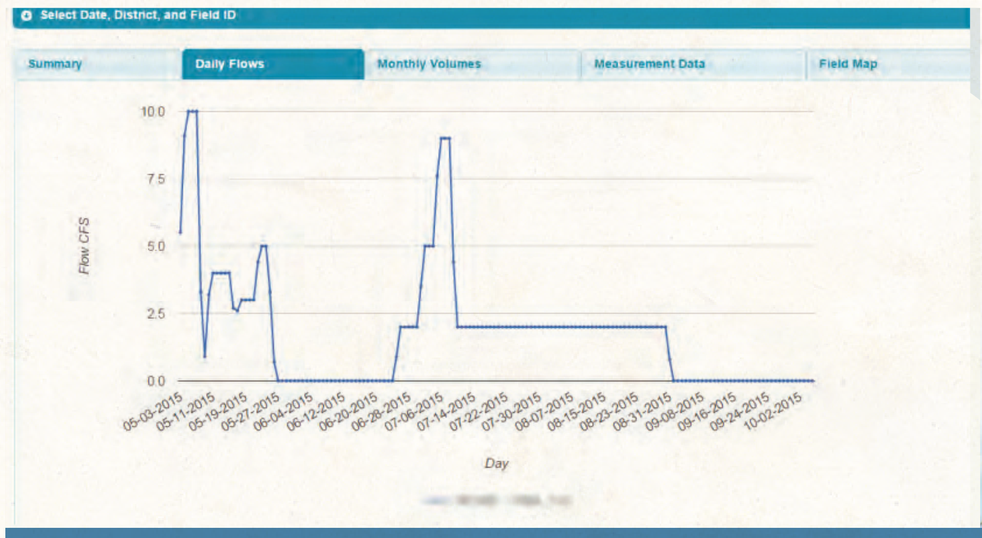
LONG-CRESTED WEIRS

BATTERY POWERED ACTUATORS HAVE REPLACED HAND-TURNED SCREW GATES

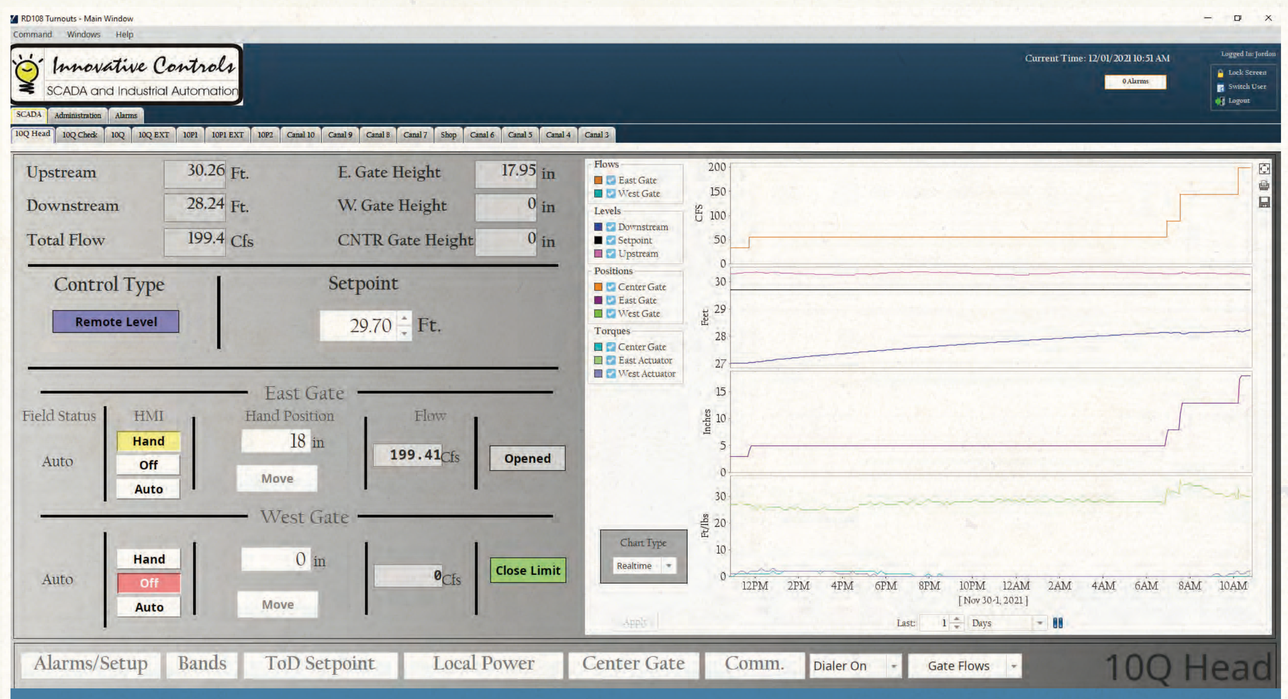
- With Long-crested weirs, RD108 is able to reduce upstream level fluctuations.
- Radio communication hardware allows for telemetering of diversion data.

RECLAMATION DISTRICT 108

MEASUREMENT, DATA ACQUISITION, AND COMMUNICATION



REMOTE TRACKER TECHNOLOGY BY H2OTECH™ ALLOWS FOR THE CUSTOMER INTERFACE GIVING CUSTOMIZABLE VIEWING OF DATA IN REALTIME



SCADA (SUPERVISORY CONTROL AND DATA ACQUISITION)
HMI (HUMAN MACHINE INTERFACE)

SOFTWARE COLLECTING IN-FIELD MEASUREMENTS

- RD108 understands the importance of water measurement, collecting thousands of data points per day.
- Field-turnout measurements are gathered via meters or a portable acoustic velocimeter which transmits via Bluetooth to a laptop in the watermen's pickup. The measurement data travels instantaneously via cellular to a server in the District office where it distributes in real-time to growers through an App on their phone.
- River Diversion measurements transmit to the Districts headquarters every 15 minutes and are automatically uploaded to the districts website weekly.

RECLAMATION DISTRICT 108

HARD TIMES TO BACK IN THE BLACK

At it's worst, RD108 owned more than half of the District lands since assessments weren't able to be paid.

RD108 leased these lands back to the owners to farm until assessments were paid.

The last "Tract" to be reclaimed was Tract 6.

Since all debt had been retired, the distribution of the revenue from the sale of Tract 6 became very controversial.

The Board was modified from 3 to 5 members.

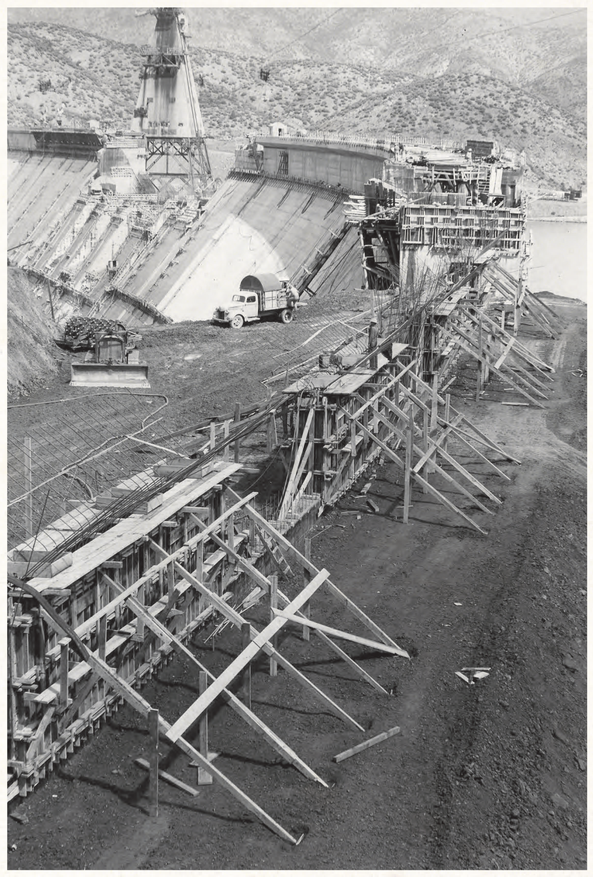
Ultimately, RD108 sought and received special legislation allowing RD108 to keep Tract 6 and still owns it to this day.

The Tract 6 revenue provides an "assessment" type of income to operate RD108.

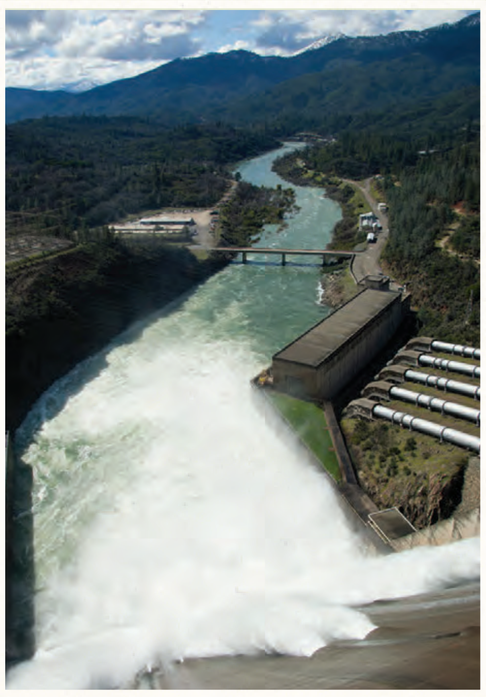
RECLAMATION DISTRICT 108

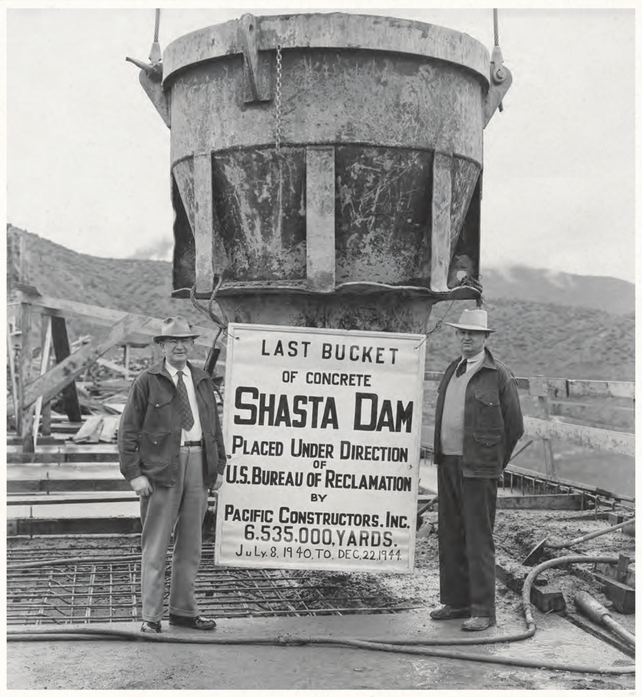
WATER RIGHTS

SHASTA AND THE SETTLEMENT CONTRACTS



- The District has invested a lot of time and resources to secure its water rights.
- The District benefits from more than 25% of lands having Riparian Water Rights to the Sacramento River.
- In 1914, the District filed appropriative water right applications with the State of California. Those applications were granted and the District now holds some of the most senior rights on the Sacramento River.
- In 1945, the federal government completed construction of Shasta Dam, which dramatically changed the flow regime on the Sacramento River.
- In 1964, after two decades of negotiations, the federal government and senior water right holders on the Sacramento River, including RD 108, signed “water right settlement” contracts, thus avoiding a major water rights dispute.
- The contracts were renewed in 2005 for a new 40-year term. Protection of the District’s water supply remains a key priority to this day.



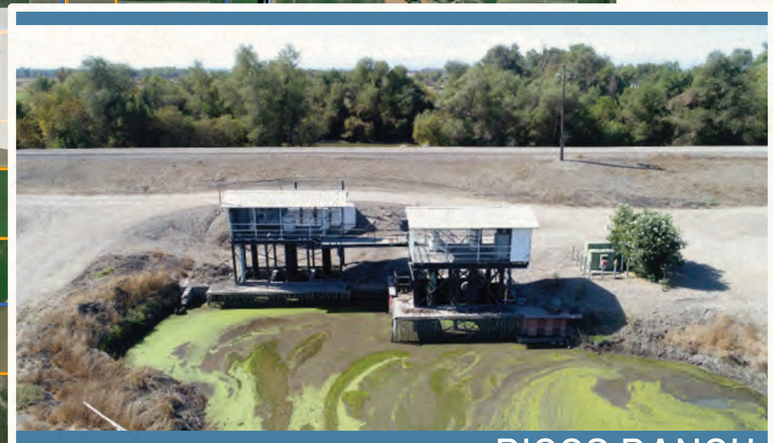


RECLAMATION DISTRICT 108

WATER REUSE

LATERAL 8

Drain water can be reintroduced to the Districts delivery system through three pumps with a maximum capacity of 175 cfs.



RIGGS RANCH

A three-way box system allows for discharge or reuse of drain water, as well as diversion from the Colusa Basin Drain.

SYCAMORE

Drain water can be reintroduced to the Districts delivery system through four pumps with a maximum capacity of 270 cfs.

CELEBRATING 150 Years

108 RECLAMATION DISTRICT

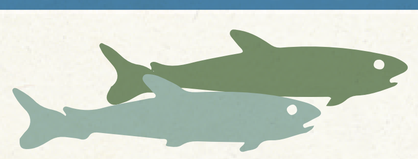
RECLAMATION DISTRICT 108

FISH LIFECYCLE

RD 108 has partnered with others in the Sacramento Valley to support a comprehensive approach to recover salmon led by NCWA and their Sacramento Valley Salmon Recovery Program. Examples of RD108's efforts include:

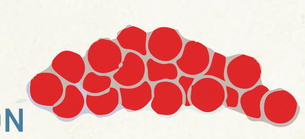
- Examples of RD108's efforts include Upper Sacramento River Spawning Gravel injection projects at Keswick Dam and Market Street.
- Juvenile Rearing project at Lake California Side Chanel.
- Floodplain Rearing in the mid-Sacramento River with the planning efforts called Floodplains Reimagined.
- Construction of Wilkins Slough and Emery Poundstone Fish Screen Facilities.
- Preventing Adult Straying with the Construction of both Wallace Weir Fish Rescue Facility and the Knights Landing Outfall Gates.
- All of these projects have a complex network of partners! These projects represent well over $60 million dollars invested!

Three of Chinook salmon's life stages are found in the Sacramento River



SPAWNING

Adult winter-run salmon seek out shallow waters and side channels to lay their eggs in the loose gravel that has collected in the river.



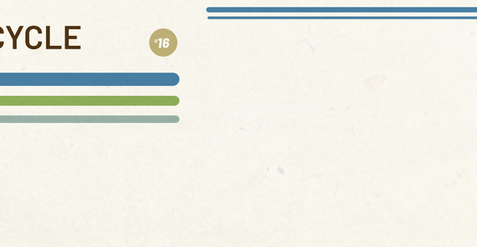
INCUBATION

Salmon eggs benefit from cold water during the period when the salmon redds (eggs) are incubating.

REARING AND EARLY LIFE STAGES

When the young salmon fry release from their eggs, they seek out shelter in woody debris or among rocks for protection from predators and the swift current.

Recent Salmon Recovery Program Projects



Knights Landing Outfall Gates (KLOG)

Installed a positive fish barrier on the downstream side of the existing Knights Landing Outfall Gates to eliminate adult salmon straying off of the Sacramento River. (Project Completed in 2015)

Lake California Side Channel Reconnection Project

Removed accumulated gravel at the inlet and reconnect and existing side channel to the Sacramento River during the low flows of late fall and early winter between river mile 269 and 270 to create rearing habitat for juvenile salmon. (Project completed in 2017)

Wallace Weir Fish Rescue Facility Project

Constructed a permanent weir with a positive fish barrier and fish collection facility in the Yolo Bypass to prevent adult salmon from straying into the Colusa Basin Drain and to facilitate relocation of adult salmon that have strayed into the Yolo Bypass. (Project completed in 2018)

RECLAMATION DISTRICT 108

PACIFIC FLYWAY

Considerable progress has been made to enhance habitat for migratory waterfowl, wintering shorebirds, raptors, riparian songbirds and other wetland dependent species in the Sacramento Valley.

During the winter, reliable water supplies in the Sacramento Valley flood harvested rice fields, provide habitat, irrigate managed wetlands and deliver water to refuges and wildlife areas.

Flooded rice fields, National Wildlife Refuges and State Wildlife Management Areas and intensively managed private wetlands help compensate for the 95% of Central Valley wetlands lost over the years.

National Wildlife Refuges and State Wildlife Areas in the Sacramento Valley provide nearly 27,000 acres of wetland habitats, while privately-managed wetlands provide another 43,000 acres.

Up to 350,000 acres of rice are flooded each winter to provide bird habitats. An additional 43,000 acres of Sacramento Valley wetlands rely on the water drained off rice fields for fall flooding.

The amazing array of bird habitat in the Sacramento Valley receives surf ace water directly from irrigation water suppliers or indirectly from the return flow of surface water.

Nearly seven million waterfowl and 300,000 shorebirds rely on the Sacramento Valley for food and habitat. Other species which benefit include raptors, riparian songbirds and additional wetland dependent species.

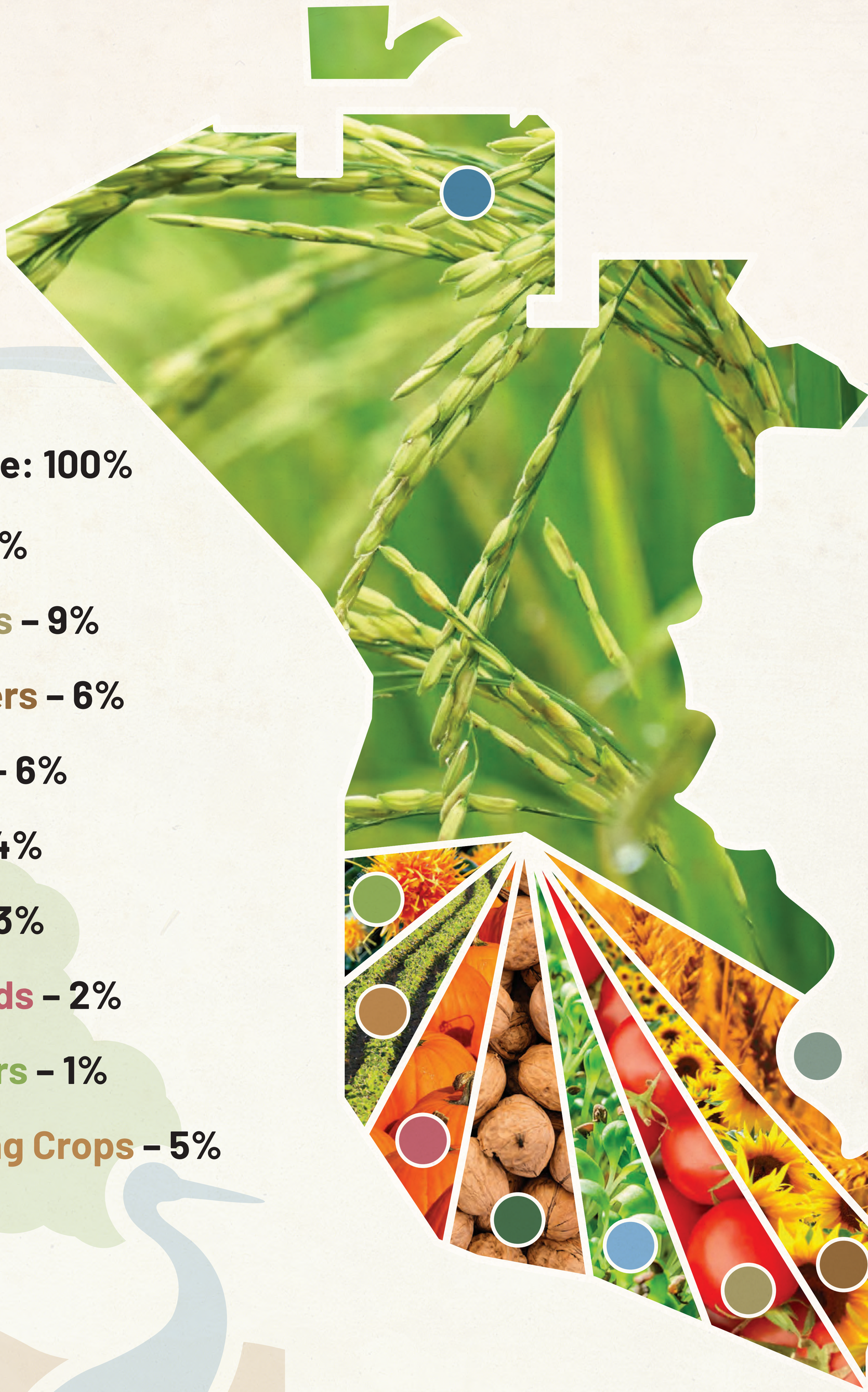
PACIFIC FLYWAY 17

CELEBRATING 150 Years

108 RECLAMATION DISTRICT

RECLAMATION DISTRICT 108

CROPPING PATTERNS



Total Acreage: 100%

- **Rice** – 64%
- **Tomatoes** – 9%
- **Sunflowers** – 6%
- **Walnuts** – 6%
- **Wheat** – 4%
- **Alfalfa** – 3%
- **Vine Seeds** – 2%
- **Safflowers** – 1%
- **Remaining Crops** – 5%

Average Yearly Irrigable Acreage: **47,183 Acres**

RECLAMATION DISTRICT 108

YEARLY CROPS

CELEBRATING 150 Years

108 RECLAMATION DISTRICT