

CALIFORNIA TROUT



FISH · WATER · PEOPLE



Environmental Water Transactions

Ada Fowler – Senior Project Director

Goals of a project

Increased flow, reduced diversion rates, maintain agricultural production and reduce costs for ranchers



Consumptive vs Non-consumptive Use in Agriculture pertaining to stream flow

Consumptive

Applied water that can not be reused

Non-consumptive

Applied water that is returned to the system

Figure 3

Consumptive Use

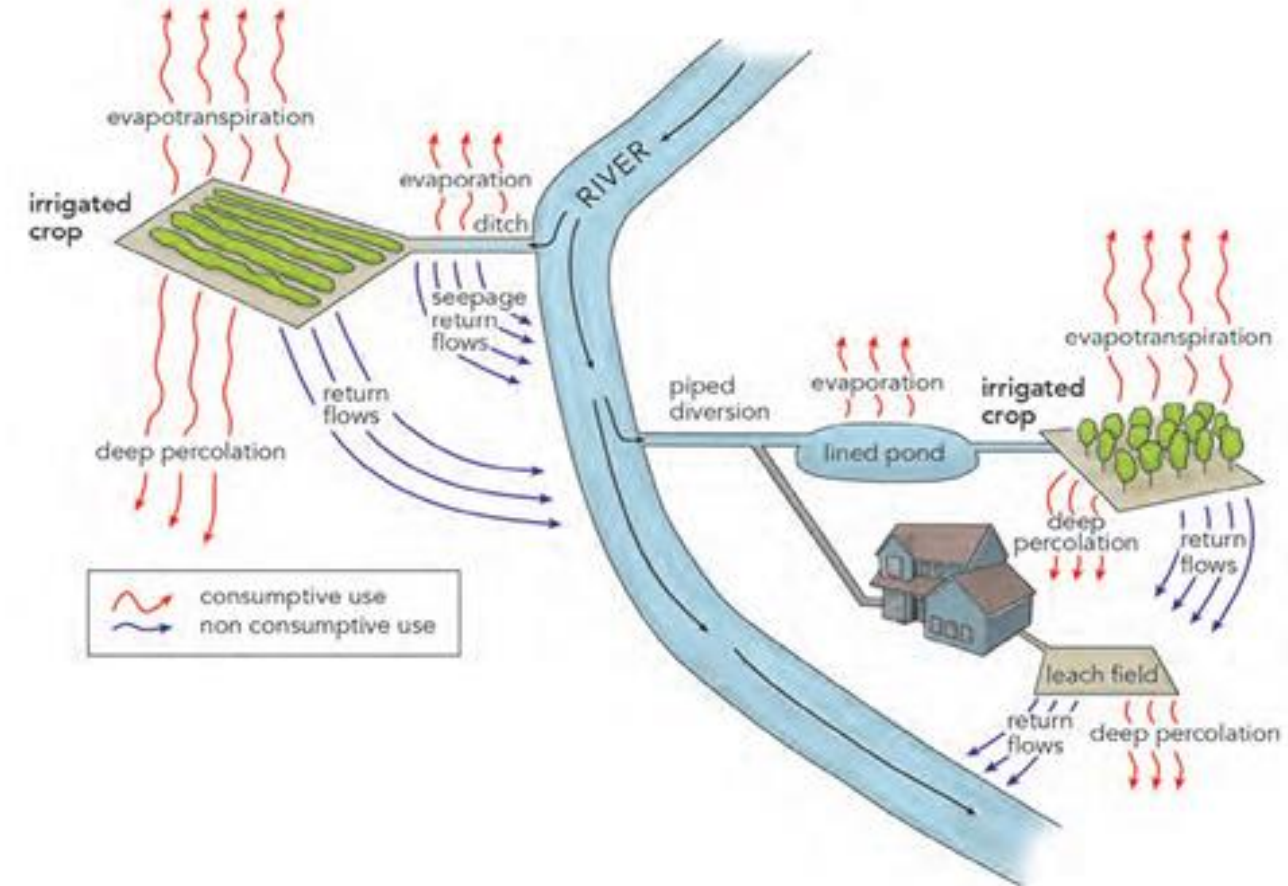


Figure 3 from "A Practitioners Guide to Instream Flow Transactions in California" (March 2016)

Goals of a project

Water dedicated instream

Leave non-consumptive
instream and add more
consumptive

Increased flow, reduced
diversion rates, maintain
agricultural production and
reduce costs for ranchers



Water Management Tactics (Consumptive and Non-consumptive uses):

A. Upstream Management

1. Timing of storage releases
2. Point of Diversion change
3. Source Switch

B. Conveyance Efficiency

1. Diversion Efficiency
2. Delivery Efficiency
3. Transmission Efficiency

C. On-Farm Efficiency

1. On-Farm Delivery Efficiency (piping/lining open ditches)
2. Application Efficiency (switching from flood to sprinklers)
3. Water management Efficiency (use of soil moisture sensors)

Consumptive Uses:

- A. Reducing Crop Consumptive Use
- B. Taking land out of Agricultural Production

Figure 3

Consumptive Use

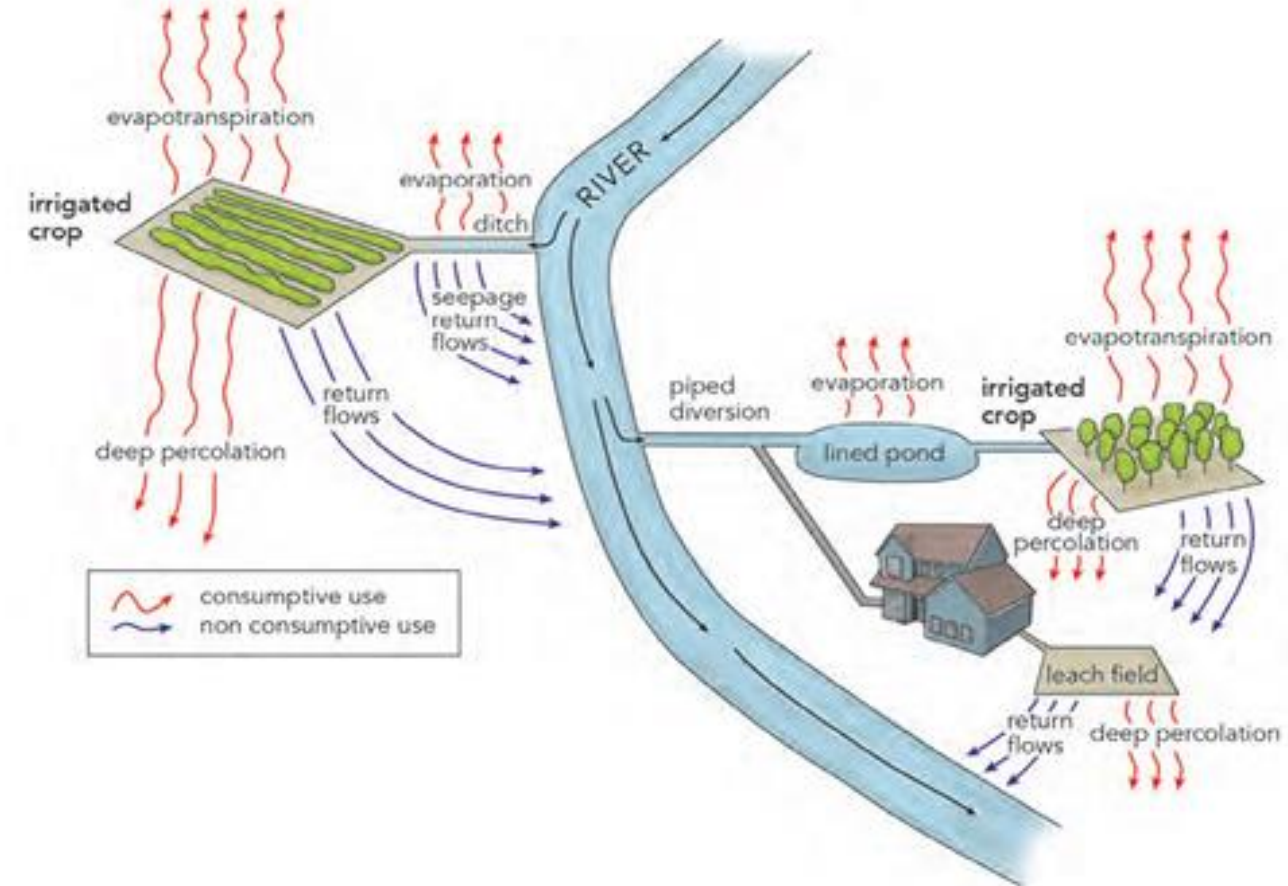


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Water Management Tactics (Consumptive and Non-consumptive uses):

- Upstream Management
- Conveyance Efficiency
- On-Farm Efficiency



Upstream Management Tactics

1. Timing of storage releases
2. Point of Diversion change
3. Source Switch



Conveyance Efficiency Tactics

1. Diversion Efficiency
2. Delivery Efficiency
3. Transmission Efficiency



On-Farm Efficiency Tactics

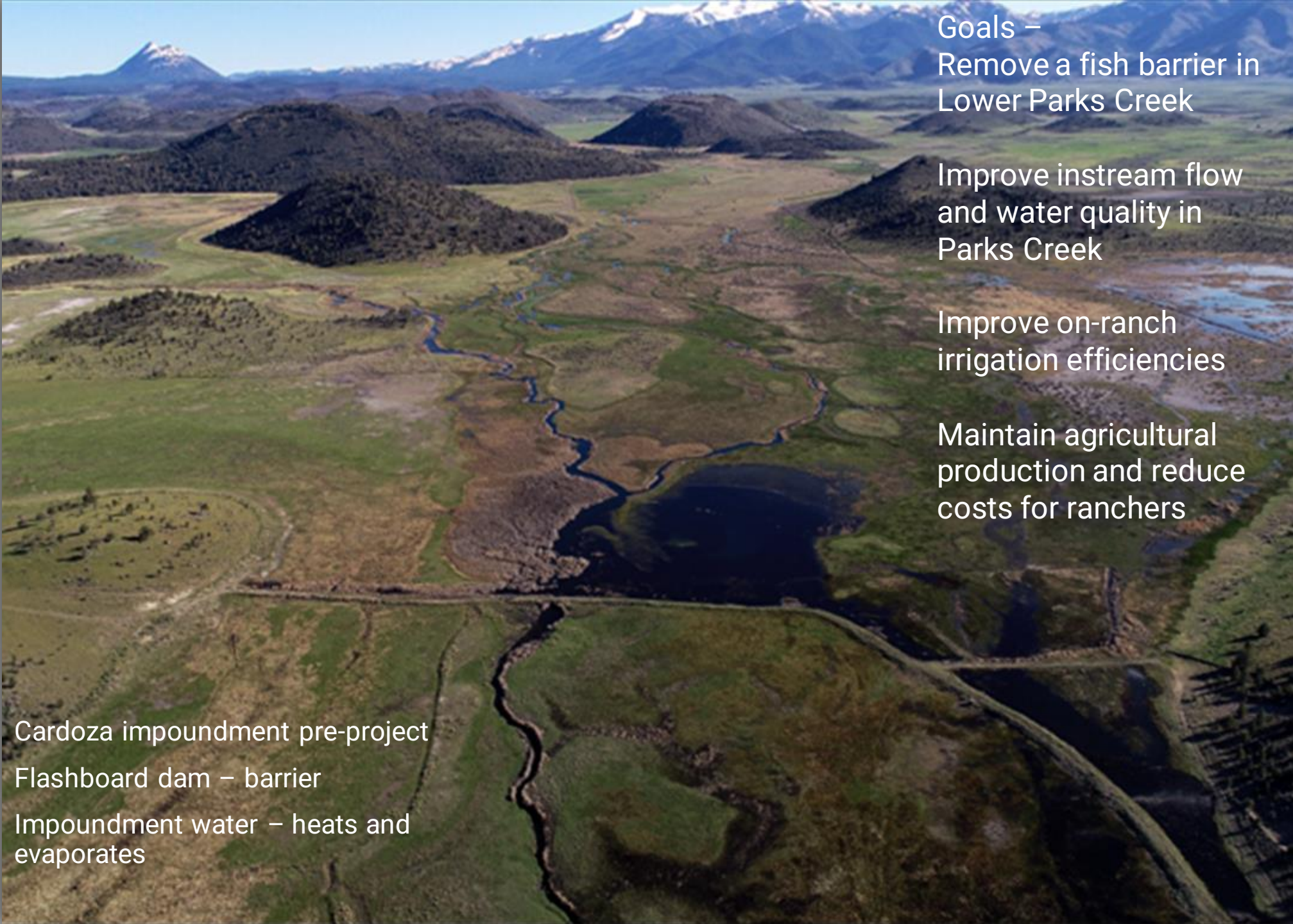
1. On-Farm Delivery Efficiency (piping/lining open ditches)
2. Application Efficiency (switching from flood to sprinklers)



On-Farm Efficiency Tactics

3. Water management Efficiency (use of soil moisture sensors)
4. Stockwater systems





Goals –
Remove a fish barrier in
Lower Parks Creek

Improve instream flow
and water quality in
Parks Creek

Improve on-ranch
irrigation efficiencies

Maintain agricultural
production and reduce
costs for ranchers

Cardoza impoundment pre-project

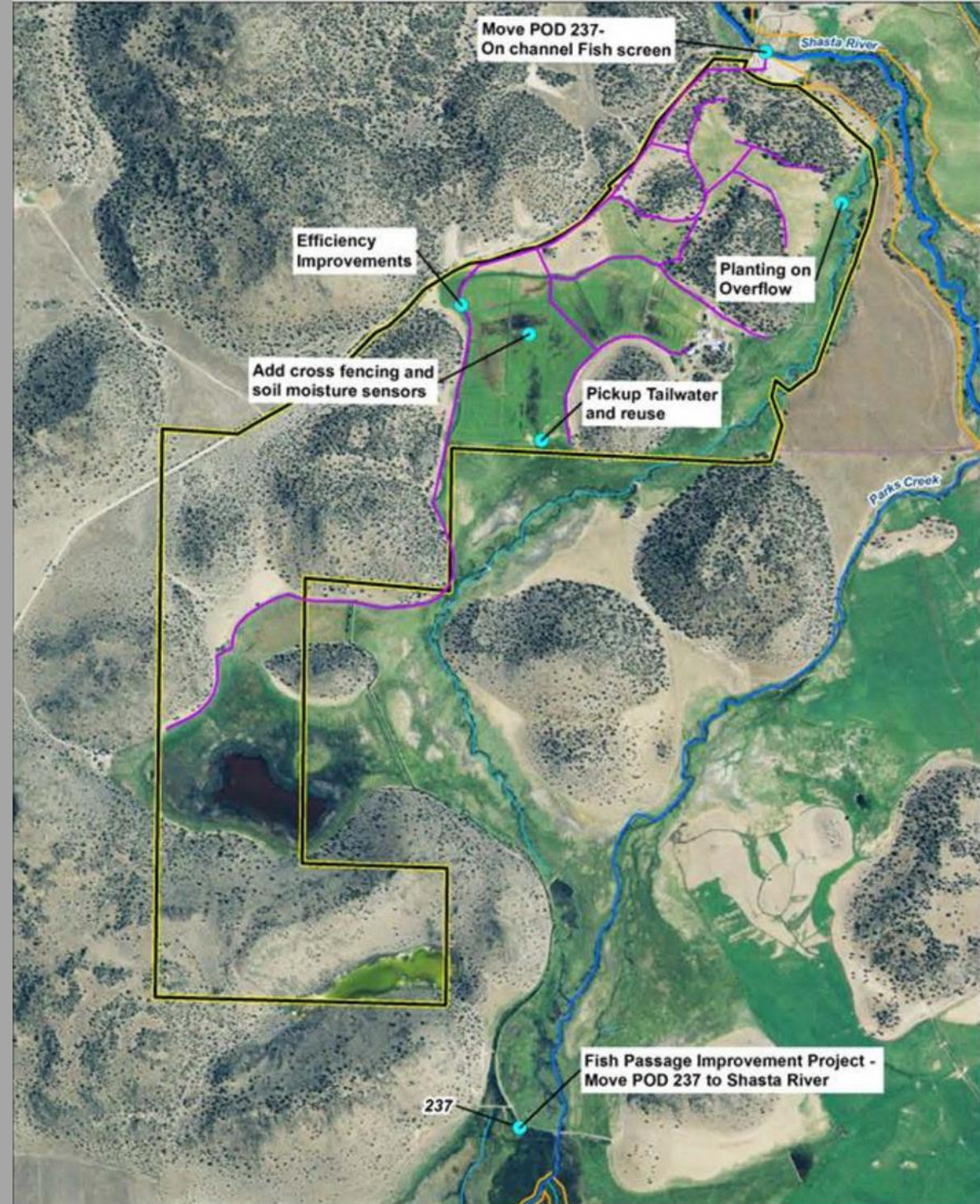
Flashboard dam – barrier

Impoundment water – heats and
evaporates

Cardoza Project footprint

Tactic used in project to dedicate water instream

- POD change
- Source Switch
- Diversion, Delivery & Transmission Efficiency
- On-Ranch Delivery & Transmission Efficiency
- On-Ranch Water Management Efficiency



Cardoza Project Benefits

Increase stream flow and improve habitat for 2.8 miles

~1000 ac-ft of water is protected instream each year between the old and new point of diversion

And additional 18 to 91 ac-ft is protected instream when not pumping at the new point of diversion

Year	Average Use (cfs)	Cumulative Use (af/season)
Water Right ¹	2.980	1008.72
2020- Pre Project ²	3.738	1353.99
2021- Year 1 Post Project ³	1.582	573.10
2022- Year 2 Post Project	1.956	708.70
2023- Year 3 Post Project	1.730	626.94

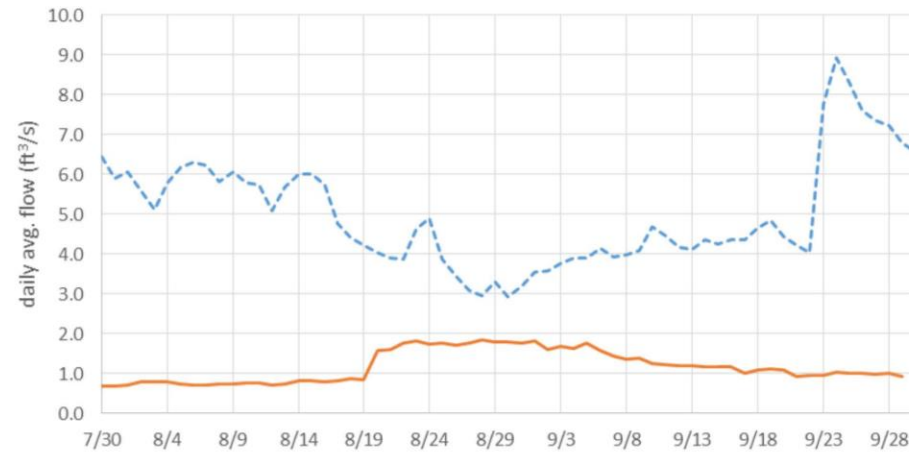
Notes:

1-Acre-feet/season is based on assumption of continuous diversion of full water right (2.98 cfs)-except the 2 weeks they would normally be off for haying

2-Based on actual monitoring data collected pre project by UCD at head gate

3- "Post project" means after POD was moved 2.8 miles downstream and pumped to POU

Flow Comparison



Temp Comparison



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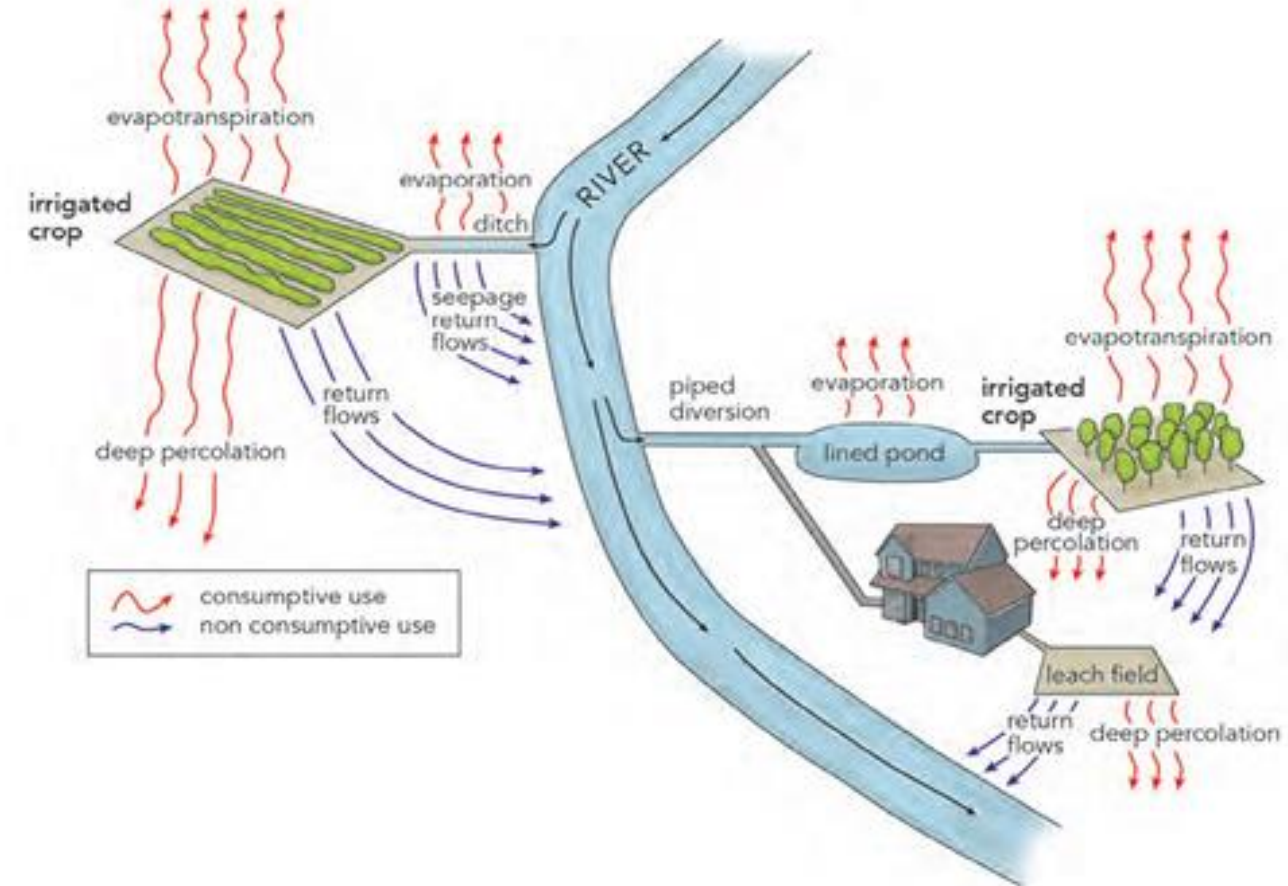
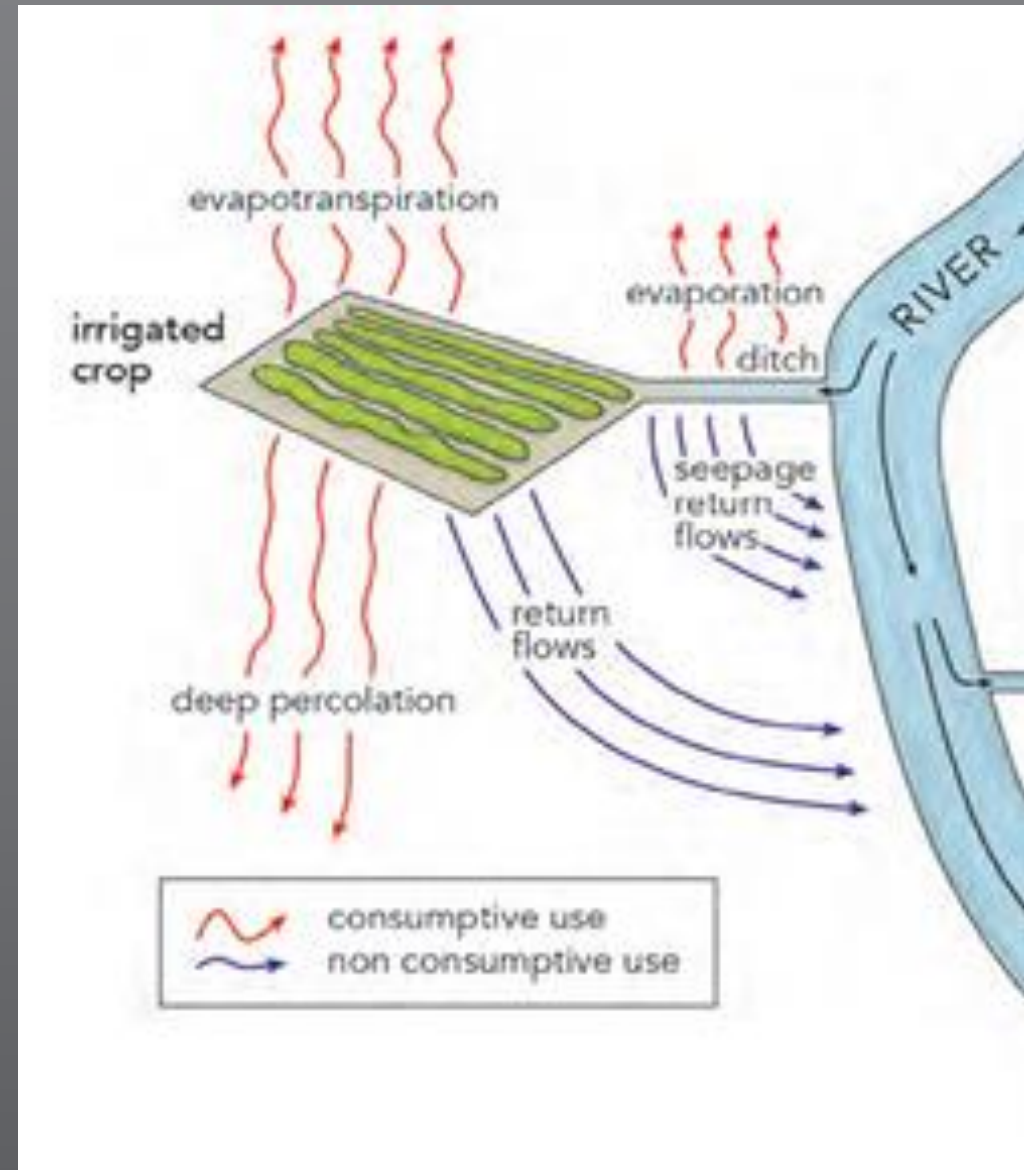


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Consumptive Water Transactions:

- A. Reducing Crop Consumptive Use
- B. Taking land out of Agricultural Production



Water Leasing

- Seasonal
SRWT
Shasta WTP
- Permanent or Temporary
- vs Permissive
- Spring Source
- Quantity \neq Quality



Seasonal Water Leasing

- Short term goals
- Ag land is fallowed during lease
- Landowner is reimbursed for loss during term of lease



Water Code Section 1707

Legally protected water dedicate
for instream uses such as fish and
wildlife

Changes the purpose of use and
protect from forfeitures for non-
use

No injury to downstream users

Only the consumptively used water
can be dedicated

Added to the supplemental decree



