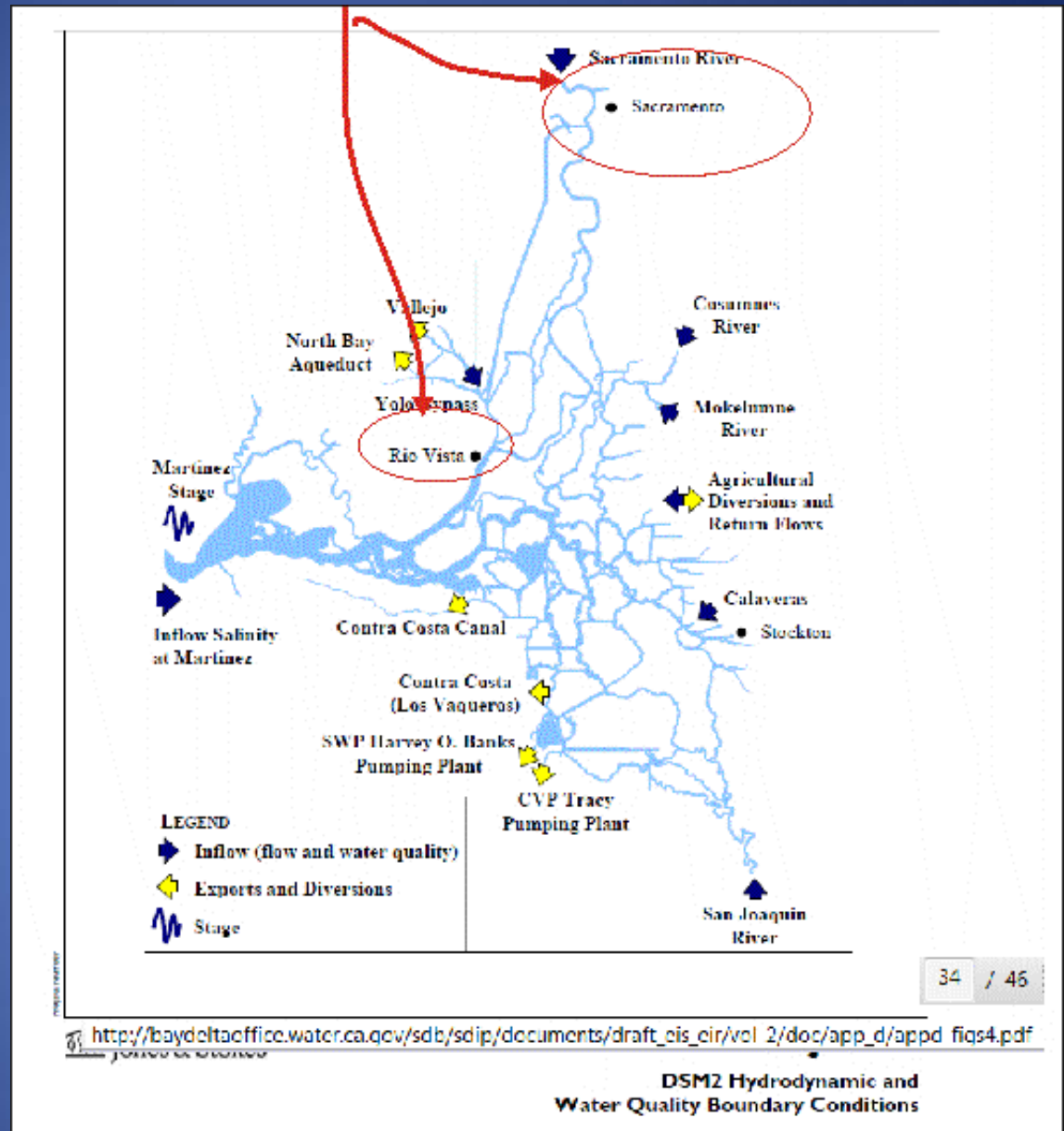


A look at how MWD &  
other water agencies  
can make an extra

**\$1.5 Billion Dollars**

by counting Yolo Bypass flows  
as if the same water flowed past the  
I Street Sacramento River gage

This DSM2 map shows how flow input for computer modeling calculates Yolo Bypass flows separate from Sacramento River Flows at Sacramento gage

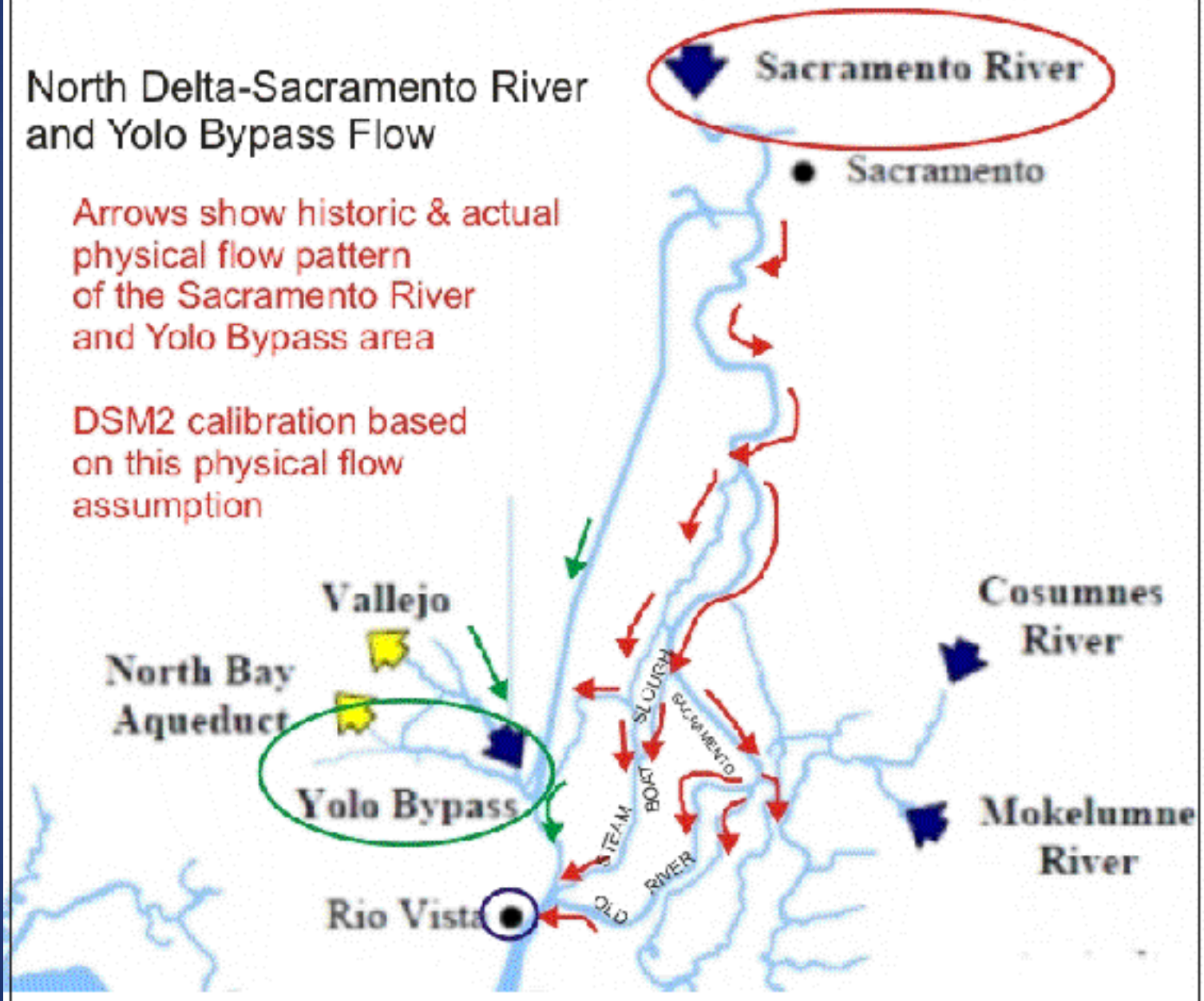


Find the links to the maps and data used in this slideshow on the maps, as noted above. This map comes from the SDIP effects planning documents found at baydeltaoffice.water.ca.gov

# North Delta-Sacramento River and Yolo Bypass Flow

Arrows show historic & actual physical flow pattern of the Sacramento River and Yolo Bypass area

DSM2 calibration based on this physical flow assumption



Despite actual physical flow, the current draft of the new Delta Plan and/or BDCP proposes counting Yolo Bypass water as if it flows on the Sacramento River, even though that water clearly does not flow on the "Main Stem" or "Old River" Sacramento, nor on Steamboat Slough or Sutter Slough



## Potential physical effect on North Delta historic waterways

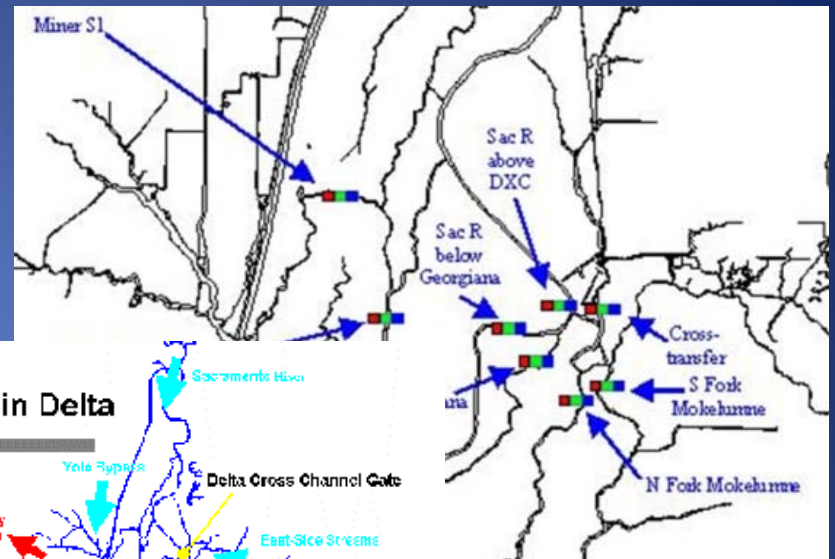
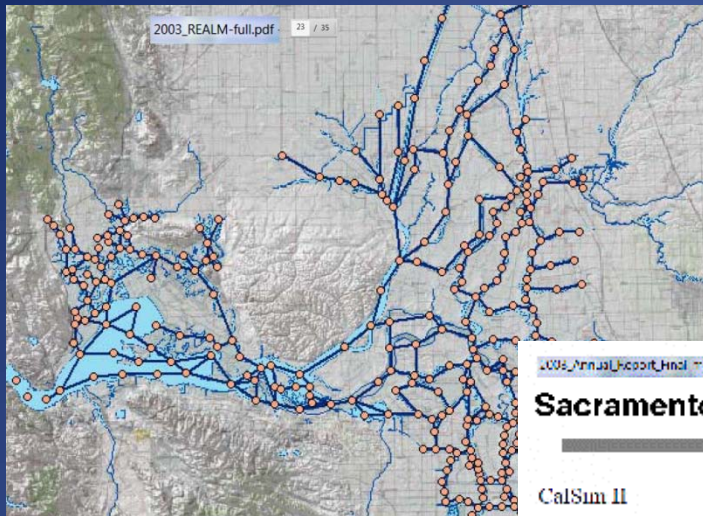
If waterflow that does not exist on the Sacramento River is diverted through the DCC gates and Georgiana Slough, then that water flow is being taken away from the waterways where it should naturally flow—that is Sutter Slough, Elk Slough, Steamboat Slough and the “Main Stem” or “Old River” section of the Sacramento River between the DCC and its outlet above Rio Vista.

**Sacramento River**  
● Sacramento

The faded red (pink) arrows show how the water flow of Steamboat and Sutter Sloughs may be reduced due to the diversion of between 3000 cfs to 15000 cfs, depending on which plan the state water contractors can push through.



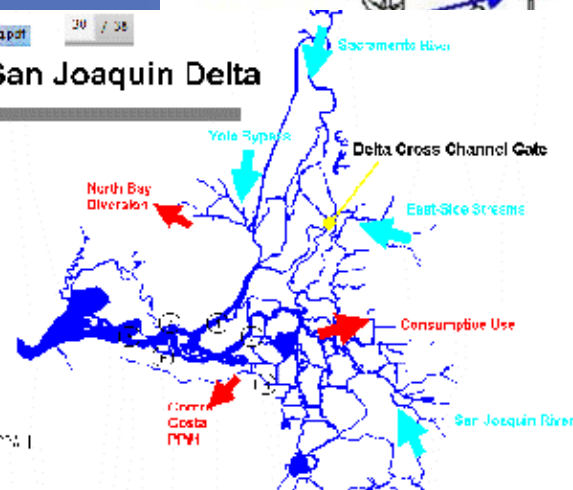




2006\_AnnualReport.html\_modeling.pdf 20 / 38

## Sacramento-San Joaquin Delta

CalSim II



[http://www.water.ca.gov/iep/docs/pod/UnTRIM\\_Calibration\\_Report.pdf](http://www.water.ca.gov/iep/docs/pod/UnTRIM_Calibration_Report.pdf)

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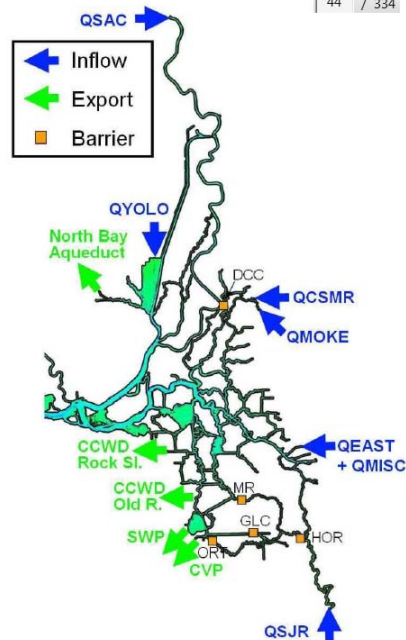
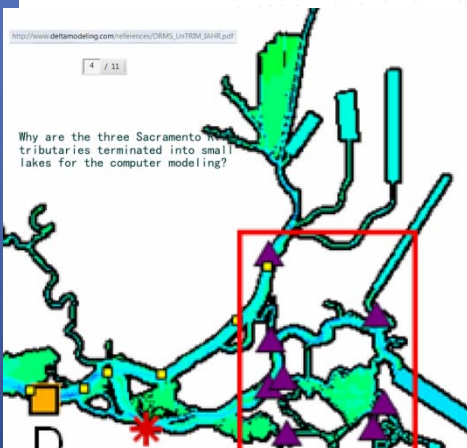


Figure 3.6-1 Locations of Delta river inflows, exports, and barriers applied to the Bay-Delta UnTRIM model.

[http://www.deltamodeling.com/references/DRMS\\_UnTRIM\\_SJHR.pdf](http://www.deltamodeling.com/references/DRMS_UnTRIM_SJHR.pdf)

4 / 11

Why are the three Sacramento tributaries terminated into small lakes for the computer modeling?



[http://www.water.ca.gov/iep/docs/prms/wsl\\_Monsen\\_S2709.pdf](http://www.water.ca.gov/iep/docs/prms/wsl_Monsen_S2709.pdf)

## Delta TRIM Hydrodynamic model

What the model does do:

1. Calculates stage, velocity and scalar concentrations at a 50 m resolution for the entire Delta and Suisun Bay
2. Accounts for real tides and river inflows, gate operations, temporary barriers, and pump operations



### References:

- Casulli and Cattani (1994) {Hydro}
- Gross (1999) {Scalar Transport}
- Monsen (2001) {Delta TRIM}

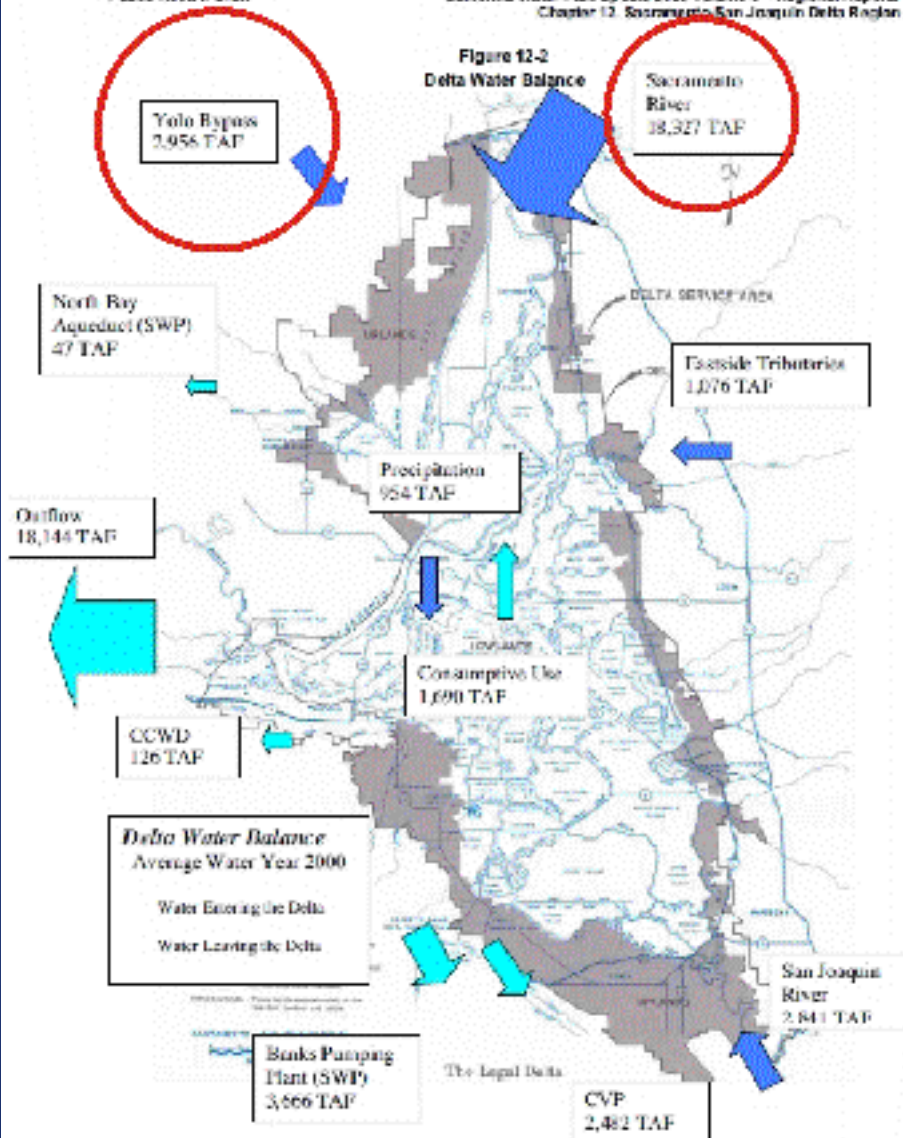
2005

[http://www.waterplan.water.ca.gov/docs/cwpu2005/vol\\_3/12\\_Delta/V3PRD12\\_Delta.pdf](http://www.waterplan.water.ca.gov/docs/cwpu2005/vol_3/12_Delta/V3PRD12_Delta.pdf)

Public Review Draft

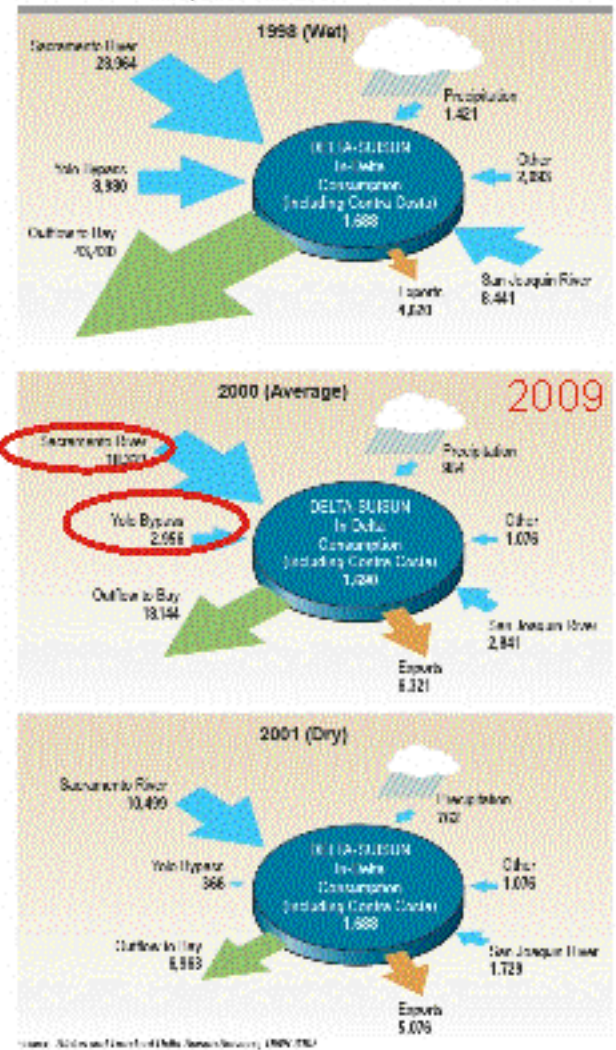
California Water Plan Update 2005 Volume 3 - Regional Reports  
Chapter 12. Sacramento-San Joaquin Delta Region

Figure 12-2  
Delta Water Balance



[http://www.waterplan.water.ca.gov/docs/cwpu2005/05105nat/v3\\_sjdelta/region\\_ows2005.pdf](http://www.waterplan.water.ca.gov/docs/cwpu2005/05105nat/v3_sjdelta/region_ows2005.pdf)

Figure DB-2 Delta Inflows/outflows for years 1998, 2001 and 2001



Source: California Department of Water Resources, 1999, 2001

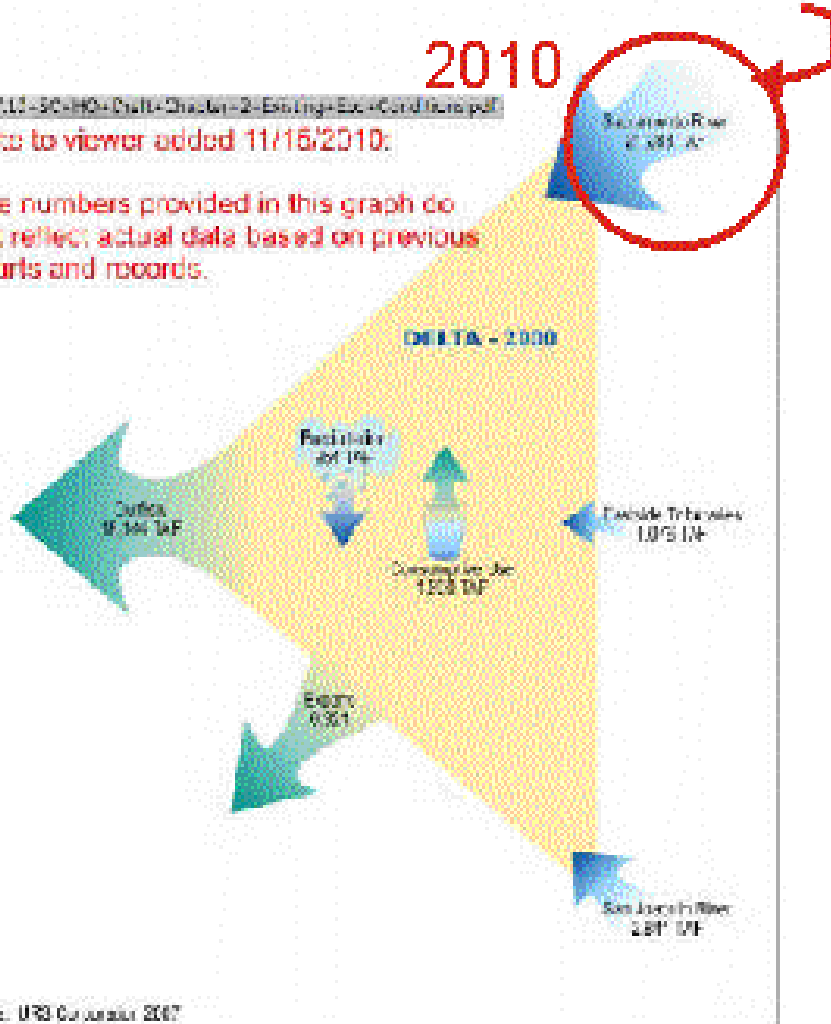
# Yolo Bypass Flows added to Sacramento River Flow

## 2010

2007.L1-30-H04-Delta-Channels-2-Enr.Ingr.Esc+Cond.Nr.ppt

Note to viewer added 11/16/2010:

The numbers provided in this graph do not reflect actual data based on previous charts and records.



Source: UFG Consultant 2010

Figure 7-19 Example Delta Water Balance for 2010 Water Year

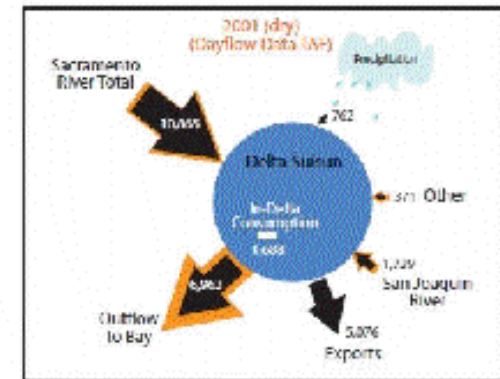
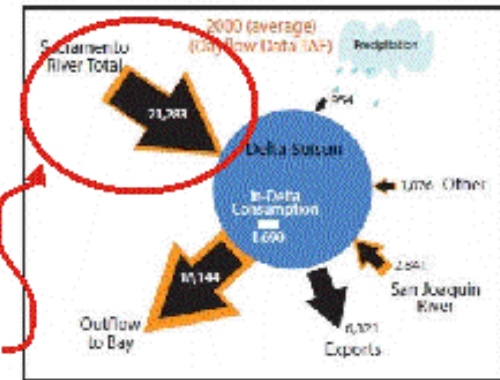
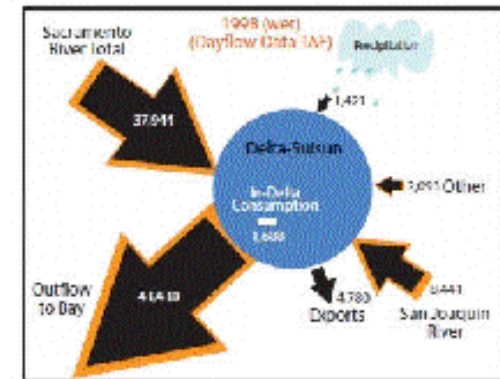
## 2007

Delta Water Balance

2007-delta trends.ppt

(20 of 57)

Flows vary significantly from year to year



↑ Unimpacted Flow without upstream dams or diversions

*Why would the proposed new Delta Plan change how Sacramento River flow & volume is calculated?*

### **\$1.5 Billion per year worth of fresh water flow, that's why!**

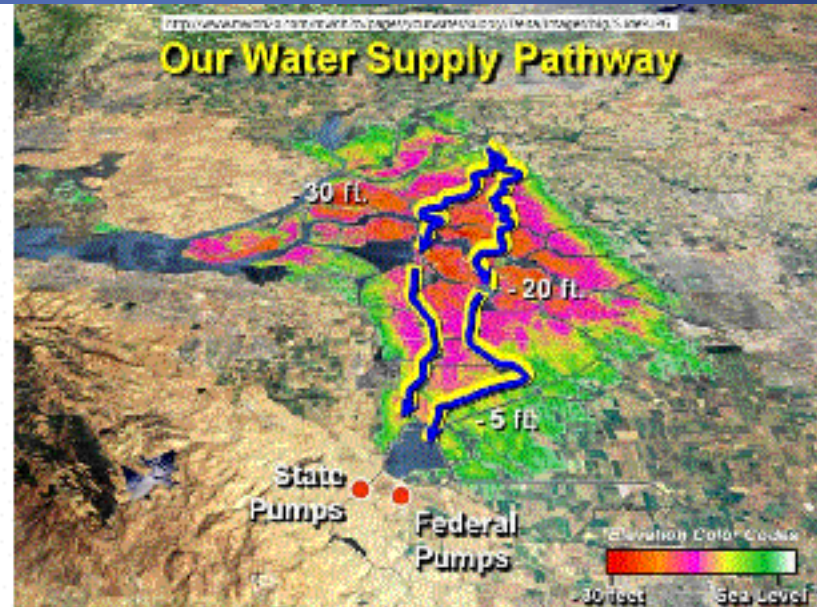
Its pretty basic math. If the water exporters are limited to "only" a specific percentage of Sacramento River water, raising the inflow number by adding water flow that can't physically even flow on the Sacramento River at the gage point results in a higher beginning number to base percent of export on. The water exporters can say "we're only taking the same % of water from the Sacramento River as before" and the x2 outflow is the same as before, but that entirely ignores the fact that the entire Yolo Bypass flow number added to the Sacramento River flow calculations is actually taking that amount of fresh water AWAY from flow in the North and West Delta. It is estimated the following farming communities will be negatively impacted: Sutter Island, Ryer Island, Grand Island, and Brannan Island & Sherman Islands on their west banks. Consider the following flow calculations:

	<u>Historical Flow Modeling</u>	<u>Sacramento + Yolo Bypass</u>
Sacramento River Flow at Freeport	18,327 TAF	21,283 TAF
Combined exports at ST & Fed pumping plants at 60% export	10,996 TAF	12,770 TAF
Total Sacramento River Flow Exported, in gallons		difference of 1,774 TAF
TAF converted to Million Gallons per Day using DWR* conversion chart	33,757,720,000,000 gallons vs	39,203,900,000,000 gallons
	= difference of 5,446,180,000,000 gallons	

IF one acre foot provides the household water for two households, as often quoted, then the difference in including the Yolo Bypass Flows with Sacramento River Flows when computing % exported represents a difference of 3,548,000 extra Households supplied with water Per year, just based on this one Change in how Delta Flows are Calculated.

How much extra income does MWD or another exporter charged just \$35 per month or \$420 per year Per household covered by the addition of Yolo Bypass Flows to the Sacramento River modeling?

\$1,490,160,000 !!!



**The water flow taken away from Steamboat and Sutter Sloughs could Make MWD over \$1.5 billion per year**

\* DWR conversion chart says 1 acre foot = 3.07 mg per the DWR annual report. For more on flow calculations go to page 8 of <http://deltarevision.com/2011videoa/waterflow/video/waterflow-graphica-2of3.pdf>

## Potential physical effect on North Delta historic waterways

If waterflow that does not exist on the Sacramento River is diverted through the DCC gates and Georgiana Slough, then that water flow is being taken away from the waterways where it should naturally flow—that is Sutter Slough, Elk Slough, Steamboat Slough and the "Main Stem" or "Old River" section of the Sacramento River between the DCC and its outlet above Rio Vista.

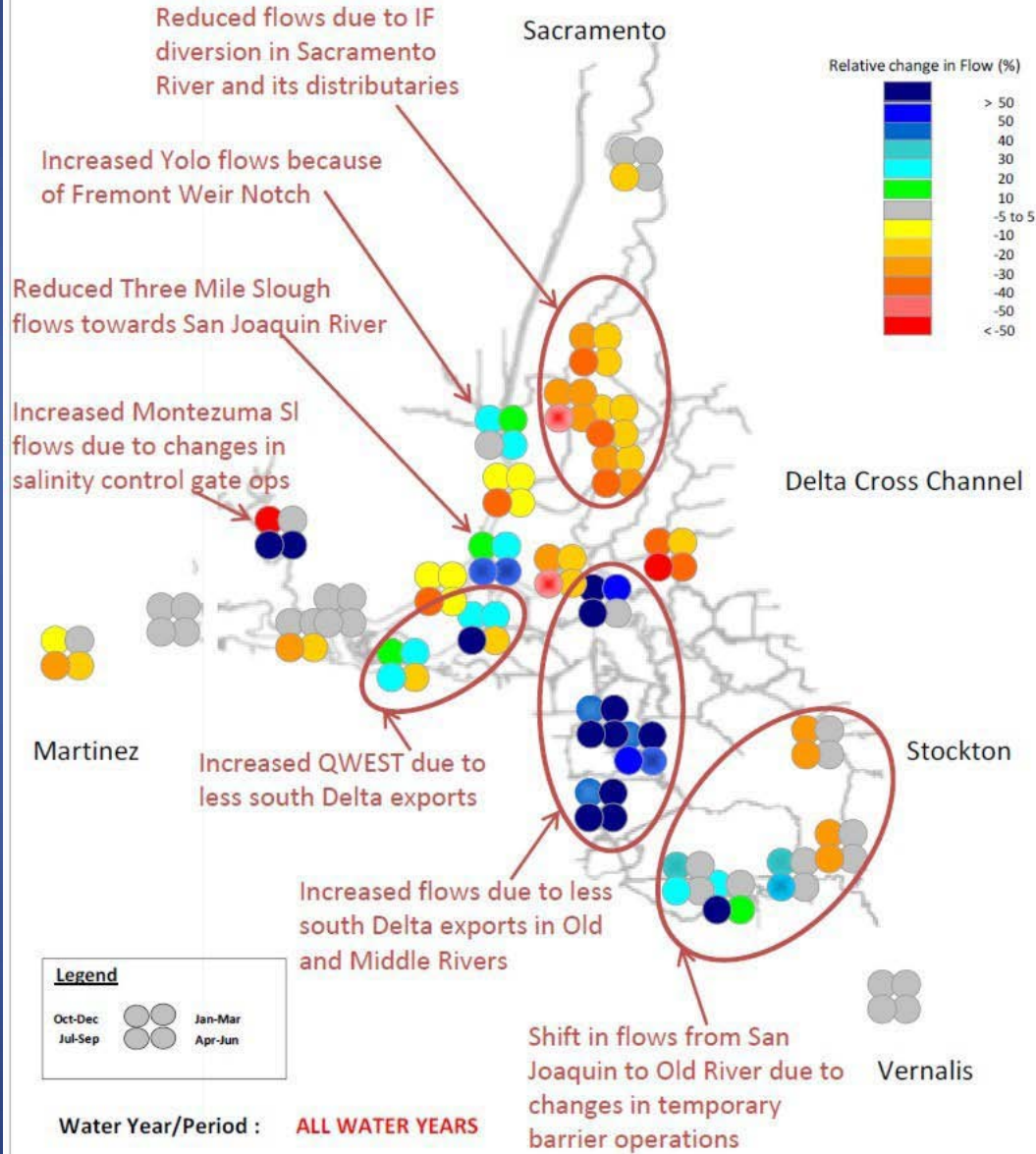
**Sacramento River**

● Sacramento

The faded red (pink) arrows show how the water flow of Steamboat and Sutter Sloughs may be reduced due to the diversion of between 3000 cfs to 15000 cfs, depending on which plan the state water contractors can push through.



# Seasonal Changes in Flow



### Year 50 Potential Project: Sacramento DWSC & SF Bay to Stockton DWSC

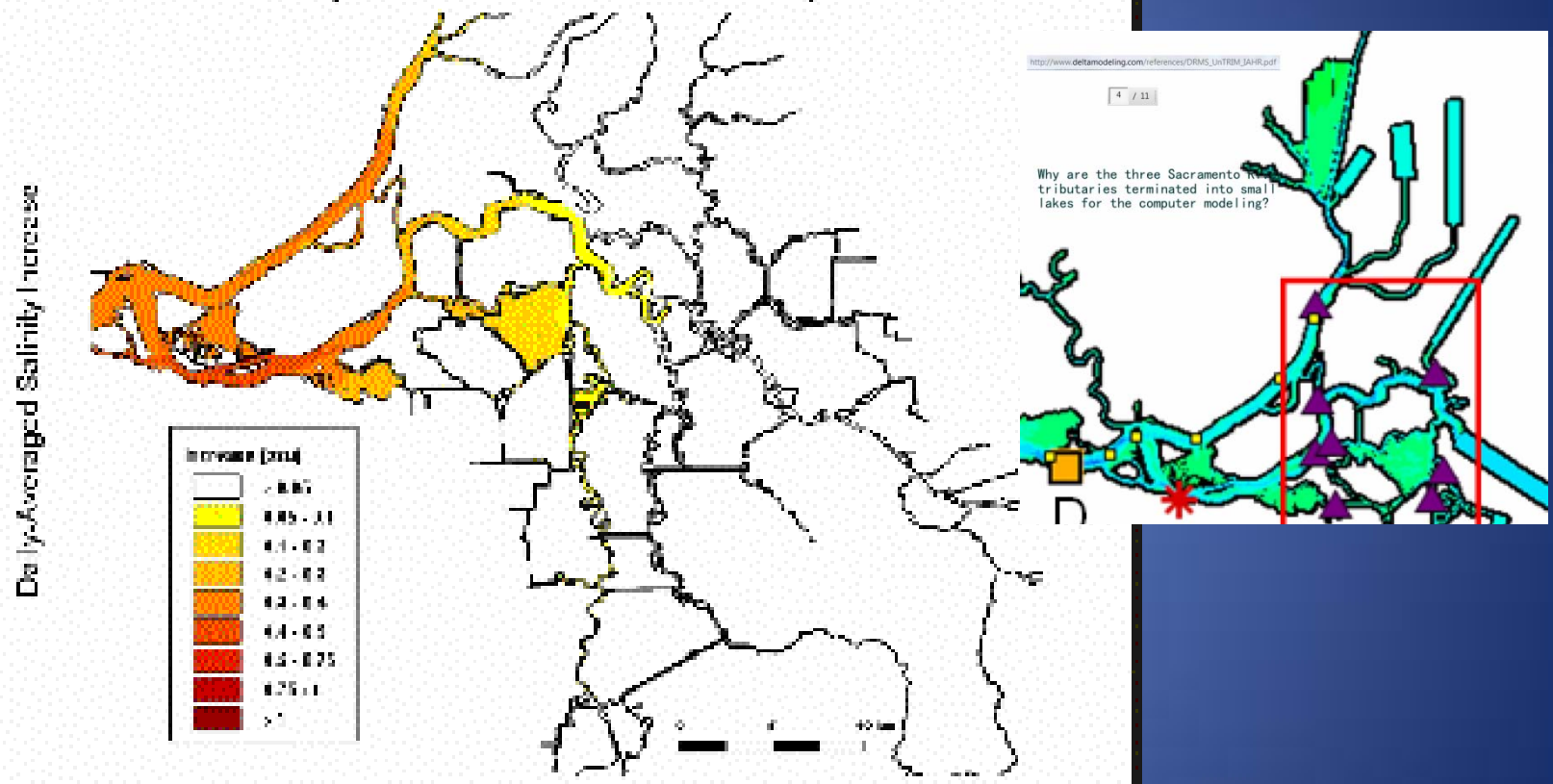
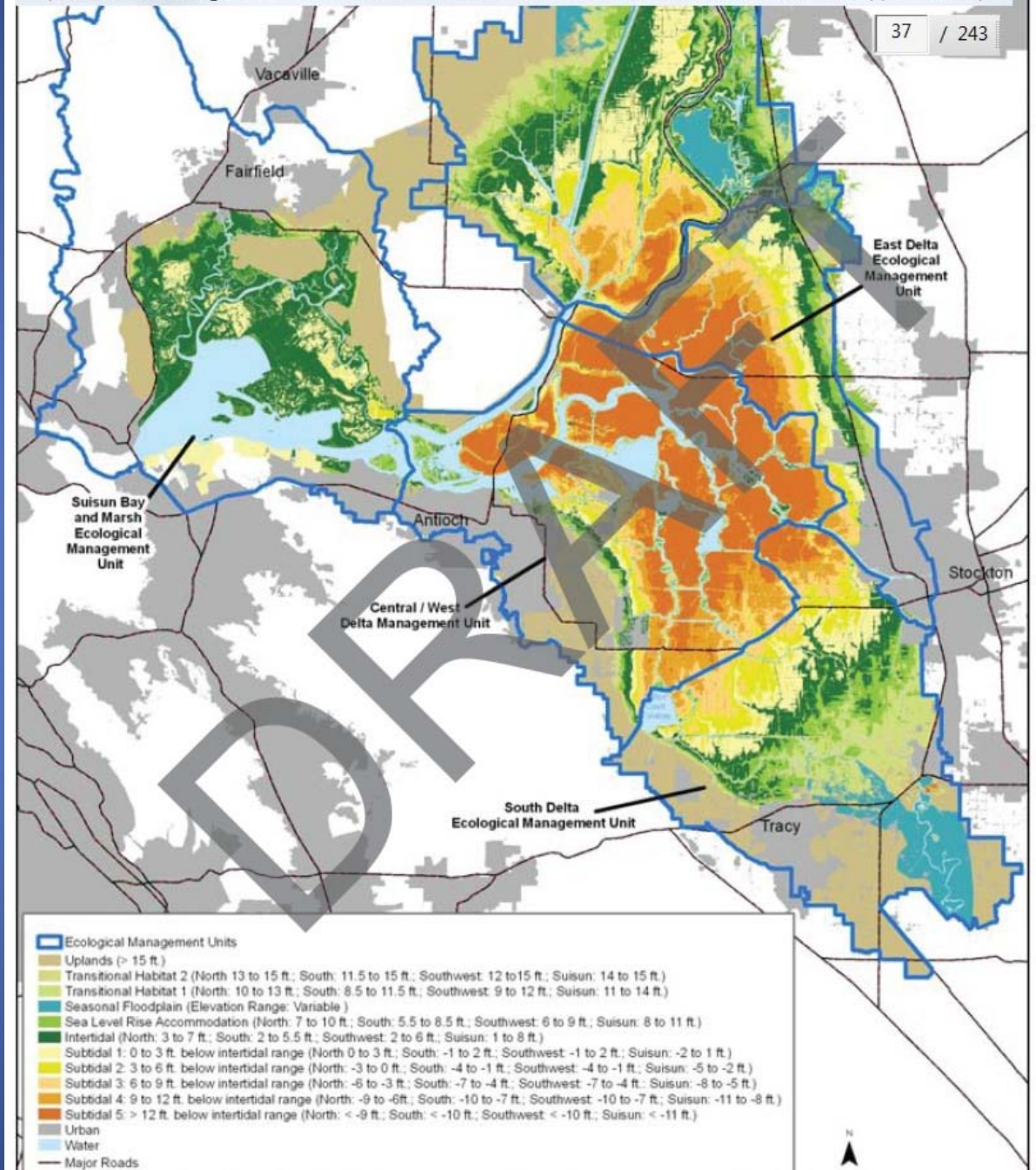


Figure 6.4-22 Predicted depth-averaged daily-averaged salinity increase in the Sacramento-San Joaquin Delta on November 1 for the Year 50 with Potential Project Both DWSC Deepening scenario relative to the Year 50 with Potential Project Baseline scenario.

The BDCP is not really about “restoration”.

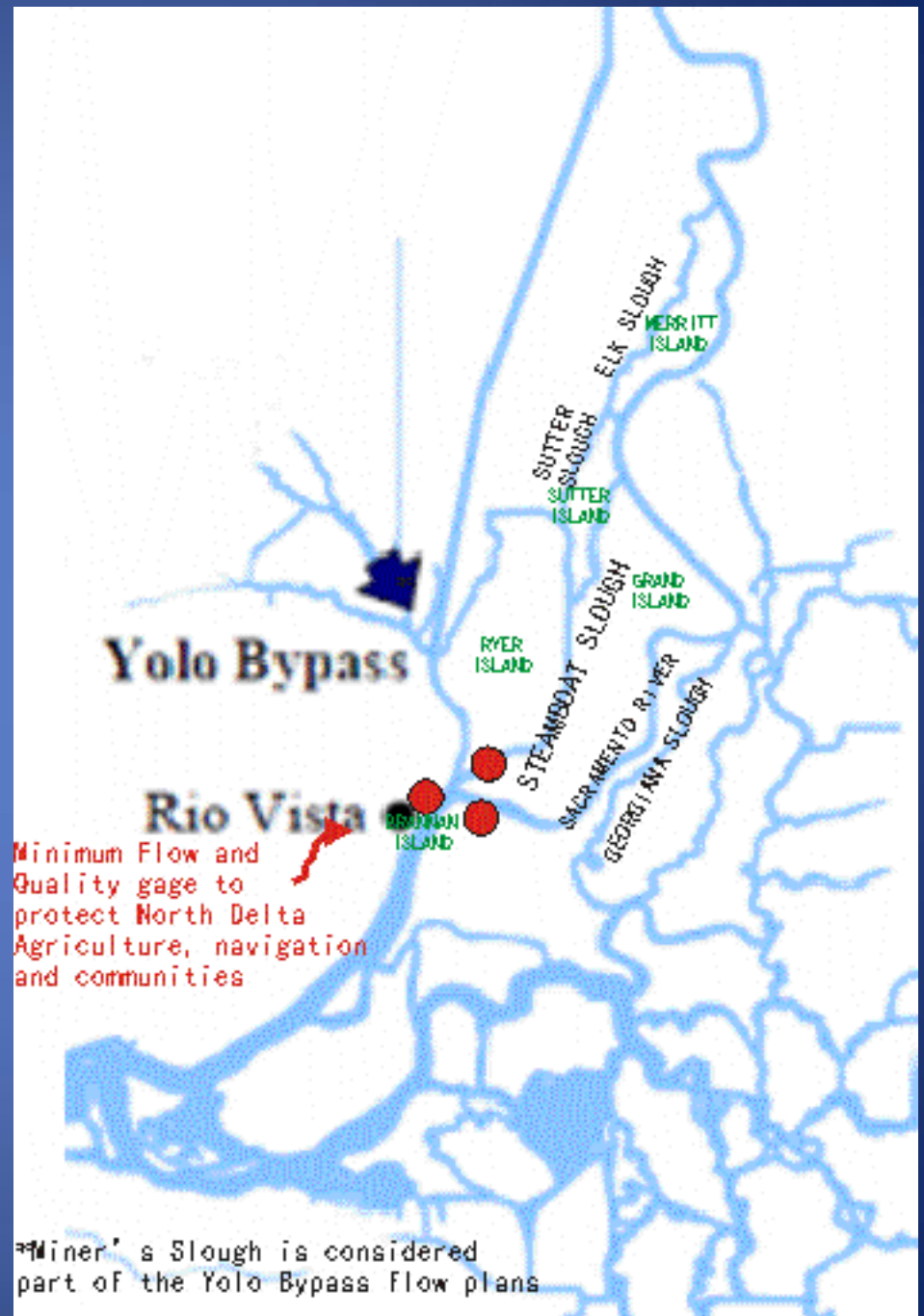
It’s about ...

“What the heck do we do with the prime farm land we destroy when we divert all the Sacramento River water for other uses?”



One way to help protect North Delta Land and water rights would be to install a.s.a.p. new flow and Salinity gages at the noted locations on Steamboat Slough and the area of the Sacramento River at its junction with the main channel, and be ready to Defend North Delta rights per Contracts and riparian water Rights when the salinity encroachment begins. These gages are important because the Rio Vista gage includes Yolo Bypass flows, which would not be reflected in the other two gages.

If you notice, the computer modeling of 2010 and 2011 seem to ignore the existence of these two natural waterways-



All monitoring and legal costs associated with protecting North Delta water rights should be paid for by the water contractors betting the benefit of that water, even though, as the MWD slide shows, they already consider the water as their water.

One way to cover the costs is to require that at least 5% of the gross amount the state water contractors make ( from resale of that water to their customers) be turned over to NDWA to be used to protect member landowner rights, and for administration of the agency. NDWA would receive a minimum of \$75 million per year, based on the minimum calculated benefit to state water contractors for the diversion of 2,000 + TAF per year diverted away from Steamboat Slough, Sutter Slough and a portion of the Sacramento River

In addition, NDWA can reserve a portion of the annual 5% income for any future litigation costs for the next time water exporters propose to take more water from the Sacramento River system. Where agriculture land retirement becomes necessary due to salinity intrusion, NDWA will be able to purchase the land at its “benefit to others” higher value, and held by NDWA for future uses or for mitigation banking and restoration.

Details about computer modeling effects  
and other Delta issues

Can be found at

DWR or BDCP or DSC or SSC or DOT

Or USACE or USBR or USFWS or F&G

Or DPC websites (to name a few!)

Many of the planning documents over the last several years,  
and a large collection of historic Delta maps and sections of  
books can be found at

<http://www.deltaREvision.com>

It is assumed that the maps and graphics used in this slide presentation are all public-record documents generated for educational uses and research regarding the Delta issues.

If any map or graphic is not a public domain item, please contact me and I will remove it from the presentation as soon as possible.

There is no commercial purpose to this presentation.