

From: sunshine@snugharbor.net
To: comments_EIR@DeltaCouncil
Subject: Comments regarding the Delta Plan, with attachments
Date: Thursday, January 26, 2012 12:28:49 PM
Attachments: [Part 1.pdf](#)
[Part 2-draft.pdf](#)
[ATTACHMENT A.pdf](#)
[ATTACHMENT B.pdf](#)
[ATTACHMENT-B-2.pdf](#)
[ATTACHMENT-B-3.pdf](#)
[ATTACHMENT-B-4.pdf](#)
[ATTACHMENT-B-5.pdf](#)
[ATTACHMENT-B-6.pdf](#)

Please accept the attached comments to the Delta Plan and the attachments incorporated by reference to my comments. Note that my comments are split into Part 1 and Part 2, and that Part 2 is in draft form, with active links to the references to be added in the final form.

Please confirm that you received Part 1 and Part 2, and attachments A and B with this first email. The additional attachments will also be forwarded by email, but to limit the size of each email, so that the email is not rejected by the server, you should expect to see a total of Parts 1 and 2 plus Attachments A through R. My comments are also available online at <http://snugharbor.net> and go to the "water wars" pages for links.

Respectfully submitted,

Nicole S. Suard, Managing Member, Snug Harbor Resorts, LLC

From: sunshine@snugharbor.net
To: comments_EIR@DeltaCouncil
Subject: attachments to Suard comments on the Delta Plan
Date: Thursday, January 26, 2012 12:39:31 PM
Attachments: [ATTACHMENT-E.pdf](#)

Please add these attachments to the comments and attachments previously sent. These are attachments E which is a large file. Please confirm these were received.

Nicky

From: sunshine@snugharbor.net
To: comments_EIR@DeltaCouncil
Subject: 3rd try! Attachments to my comments on the Delta Plan Attachments D through H
Date: Thursday, January 26, 2012 12:55:27 PM

Please open and save each attachment linked below as my email server is blocking the sending of these as attachments, probably because some are very large files.

Nicky

<http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-D.pdf>

<http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-E.pdf>

<http://snugharbor.net/images2012/DELTACOMMENTS/attachment-F-flows.pdf>

<http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-F-2.pdf>

<http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-G.pdf>

<http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-H.pdf>

From: sunshine@snugharbor.net
To: comments_EIR@DeltaCouncil
Subject: please see attachments J to P to add to my comments on the Delta Plan
Date: Thursday, January 26, 2012 1:01:06 PM

Please click and save each attachment:

<http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-J.pdf>

<http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-K.pdf>

<http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-L.pdf>

<http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-M.pdf>

<http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-N.pdf>

<http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-O.pdf>

<http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-P.pdf>



January 26, 2012 Comments submitted to: eircomments@deltacouncil.ca.gov

Comments regarding the draft Delta Plan, and the process leading up to the plan.

Submitted by Nicole (Nicky) Suard, Esq., Managing Member, [Snug Harbor Resorts, LLC](#) located on a peninsula called Snug Harbor off [Ryer Island](#) adjacent to [Steamboat Slough](#)

Part 1: Narrative Please see also Part 2 for specific Delta Plan comments, and see Attachments A through R, which can all be found online at <http://snugharbor.net/attachments.html> In addition, many of the reference maps and documents may be found at <http://DeltaREvision.com> which is an archival website focused on the Delta and California water history.

NARRATIVE:

In order for the reviewer to understand the comments and questions contained in this document, I feel it is necessary to provide a summary of the last 12 years of the process leading up to this new Delta Plan from the viewpoint of a Delta land and business owner who began to research some of the history of the Delta and California's previous water plans and reports after listening to a Delta Vision presentation in August 2008 at the Ryde Hotel. I just wanted to understand the facts based on verified history, or the truth, and not on the media hype of historical revisionists we saw starting with the Jones Tract studies. I also have been an amateur map collector in the past 15 years, and now find that my maps of Northern California and the Delta region have come in handy when comparing what DWR claims as history versus what the older maps show. In any case, below is a narrative summary of the latest attack on Delta land and water rights, from a Delta perspective. Documents, maps and studies can be accessed via the onsite links referenced in this document or in a much more detail timeline [Attachment A](#), or utilize the reference links¹.

My summary of the latest attack on Delta land and water rights: In 1982, a bond proposal to provide for funding of a peripheral canal to divert more Sacramento River water around the Delta was very clearly rejected by the voters of the state² who by an overwhelming margin said NO we do not want a canal around the Delta and do not want taxpayers to pay for it. In the meantime, in 1975 the state had already studies and published a plan for flood protection and improvement of Delta Levees³, which would also improve the reliability of water exports, so the state continued to move

¹<http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT%20A.pdf>

²<http://www.water.ca.gov/swp/milestones.cfm#1980> and <http://www.ppic.org/main/mapdetail.asp?i=855>

³http://deltarevision.com/maps/historic/1975_controlled_flood_islands_of_the_delta.jpg or http://deltarevision.com/maps/islands_floods_levees/1975_delta-floods-dwr.pdf

forward with the 1975 Delta Levees Improvements plan. A very informative survey of the Delta was conducted, including a review of the past surveys, which allowed for comparative map data to be added to the “Atwater” survey maps⁴.

“No” does not mean “no” to some people, so land developers and major water export agencies such as MWD and Westlands worked to influence elected decision makers that more water could be exported from the Delta without further ecological decline by revising how the system was operated. In the meantime, the western San Joaquin Valley farm lands (Westlands) continued to irrigate and use farmlands with toxic levels of selenium, irrigation water then flowed into drainage ditches for export back up to the Northern California area, with plans to “recirculate” and dump the toxins into the San Joaquin River for dilution within the Delta and San Francisco Bay.

In 1998 a SF Bay Area nonprofit organization funded a study and report produced by the Natural Heritage Institute⁵ which proposed revising existing gates and canals of the Delta to allow for increased diversion of Sacramento River water into the San Joaquin River system, which would provide better fresh water for the export pumps in the South Delta, and also possibly halt the drastic decline in the Delta ecosystem. That 1998 report appears to have greatly influenced an agreement among non-Delta interested parties which resulted in the August 28, 2000 CALFED Record of Decision⁶. The map on the next page should be studied carefully so that the reader (if not familiar with CALFED plans) might understand the rest of this narrative and comments. Oddly, as a land and business owner in the Delta in 2000, I recall no major discussions within the Delta regarding this landmark study that would so substantially affect decisions for the future of the Delta. However, I do recall a conversation with the then-spokesperson for Delta recreation, Hal Schell, who mentioned restoration plans for Liberty Island, while I was giving him a boat ride around the just-flooded island. I don't believe Hal ever published his article about Liberty Island levee breaches in 1998, nor articles about CALFED plans for the Delta. Hal was doing research for a major book on the history of the Delta when he passed.

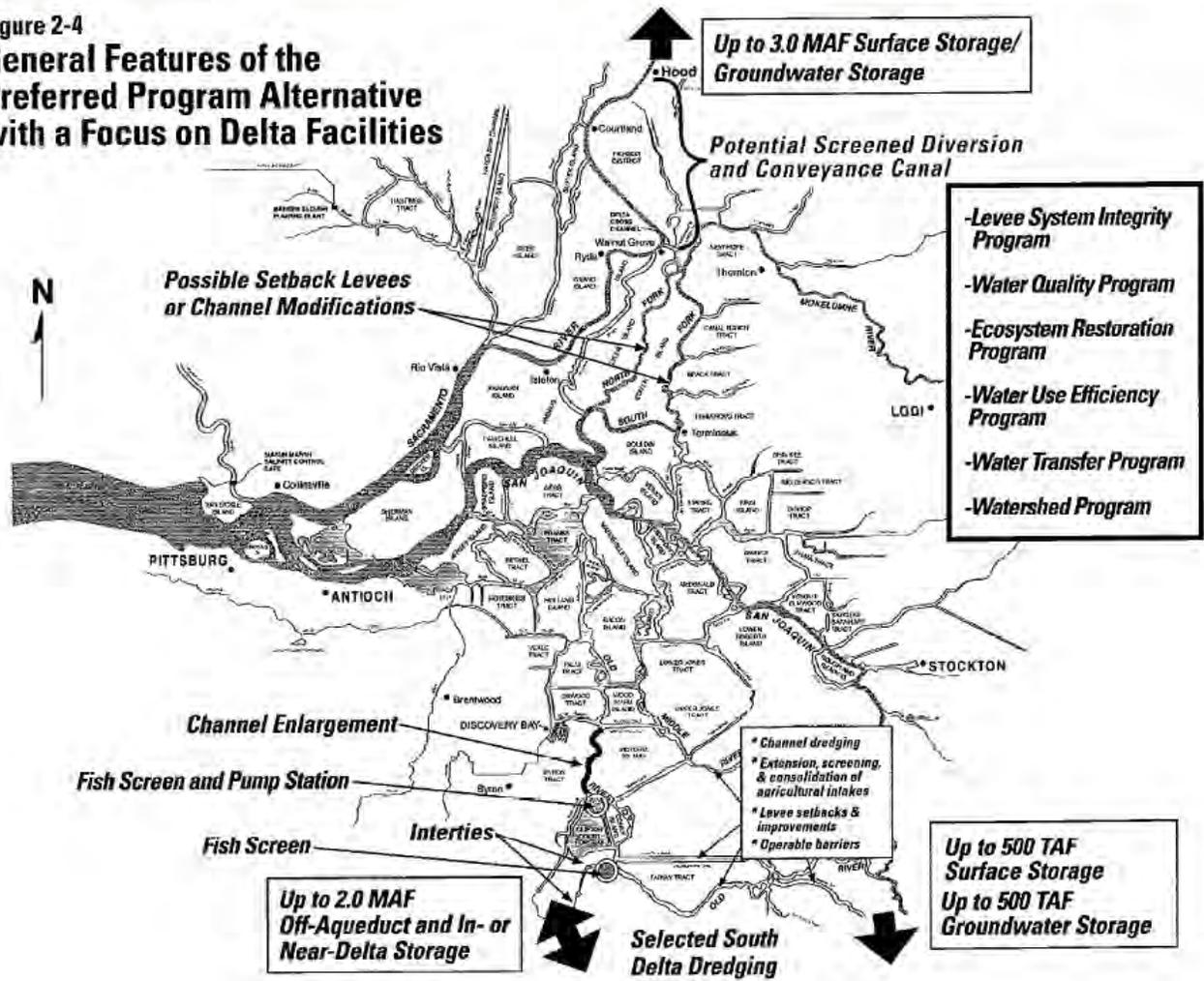
In any case, the CALFED “preferred alternative” listed specific water conveyance improvements to move more Sacramento River water through and around the Delta to the exports pumps, and also listed specific restoration projects that would be necessary to mitigate for the negative impacts to the Delta ecological environment.

⁴ http://deltarevision.com/surveys_of_sacramento_san_joaquin_delta.html example map <http://deltarevision.com/maps-surveys/1982-atwater/atwater-1-sacramentoriver.pdf>

⁵ <http://www.n-h-i.org/> or http://deltarevision.com/1990-1999_docs/NHI-Packard_delta_study1998.pdf

⁶ http://www.calwater.ca.gov/content/Documents/library/July2000_EIS_EIR/301/301_chapter2.pdf and for the whole plan: http://calwater.ca.gov/calfed/library/Archive_ROD.html

**Figure 2-4
 General Features of the
 Preferred Program Alternative
 with a Focus on Delta Facilities**



Above is a screen print showing the link and the CALFED general features of the “Preferred Program Alternative”, accessed on 1/24/2012. Below is a summary compiled at a UC Davis website⁷ as noted in the screen print.

⁷ <http://deltarevision.com/COMMENTS/calfed-summary.jpg> (UC Davis website no longer displays the document)

Alternatives Description: <http://ics.ucdavis.edu/education/esp179/?q=node/149>

All four alternatives involve the Eight Program Elements (below) to address the four critical resource categories (see introduction above). The Eight Program Elements are practical steps to improve the overall Delta conditions and they are inter-related. The alternatives differ on the varying emphasis put on different elements.

The Eight Program Elements:

1. Storage
2. Conveyance
3. Watershed Management
4. Water Quality
5. Water Transfers
6. Levee System Integrity
7. Water Use Efficiency
8. Ecosystem Restoration

Good summary of what is happening in the Delta, and what is already being built or ready to operate.... 2012

Alternative 1: "relies primarily on the current configuration of the Delta channels."

Fish screen and barrier improvements to the SWP and CVP pumps; off-Delta storage.

Alternative 2: "adds improvements to north Delta channels that accompany the south Delta improvements contemplated in Alternative 1." Alternative 1 + some setback levees in the north Delta + Convergence Canal in the north.

Alternative 3: "adds a canal connecting the Sacramento River in the north Delta to the SWP and CVP export facilities in the south Delta." Peripheral Canal; northern setback levees; off-Delta storage.

Preferred Program Alternative: "includes a screened facility on the Sacramento River and other north Delta improvements, if these features are determined necessary to meet drinking water quality goals and can be operated without adversely affecting fish populations". A mix of Alternative 1 and 2.

In addition, the **No Action Alternative** is included in the impact analysis and comparison.

By 2003 the major water exporters were already pushing to revise the 2000 CALFED ROD to allow for greater flexibility of water transfers, greater possibility of water exports from the Sacramento River, changes to water quality standards for the Delta and more⁸. There is reference to a meeting in Napa, but the revision is called "Monterey Plus" and the decisions were made by water exporters without input or protections for Delta interests. In the meantime, DWR and other state and federal agencies were spending billions of dollars on computer modeling⁹, fish studies¹⁰, transportation planning¹¹ and levee modifications¹².

Beginning in 2004, there was a meeting of "stakeholders" (they seemed to refer to themselves or their actions as the DeltaPact) which was in effect a call to action. Please take the time now to review the MWD slideshow found at their website in 2008, but hard to find now except at

http://deltarevision.com/2004_docs/wptf20040408_deltapack.pdf

<http://socialwaterdialogue.org/calendar/papers/04-2-04.pdf> for a 2005 edited copy of the same presentation accessed 1/24/2012 linked from the MWD website¹³

After the "Deltapack" presentation, the CALFED preferred alternative (renamed the Delta Improvements Package), began to have name changes for elements of the **conveyance** project portion of the plan. The above MWD slideshow from 2004 includes the name of a PR firm, (last slide)

⁸ http://www.water.ca.gov/environmentalservices/docs/mntry_plus/Monterey%20Plus-ExhC_Statement%20of%20Overriding%20Considerations.pdf

⁹ <http://deltarevision.com/computer-modeling.html>

¹⁰ http://deltarevision.com/Delta_maps/Fish_studies.htm

¹¹ http://www.dot.ca.gov/hq/tpp/californiainterregionalblueprint/images/maps/Priority_Reg-Corridors.pdf

¹² http://deltarevision.com/2003_docs.htm

¹³ <http://socialwaterdialogue.org/calendar/papers.html#2011>

and the whole presentation appears to be a call to action, so perhaps this is the point in time when a concerted effort to provide false data, maps and information on the Delta to the public began as well.

In any case, the conveyance portion of the CALFED 2000 ROD was renamed to the “Delta Improvement Project” which was split into South Delta Improvements Plan¹⁴ (SDIP) and North Delta Improvements Plan¹⁵ (NDIP). These plans were then further split into regional projects and plans, using names that indicated “restoration”¹⁶ or “flood control”¹⁷. However, the actual function of the “as built” projects continued to be elements of *conveyance*¹⁸.

In the meantime, in 2004, the state moved forward with its field studies¹⁹ for use of Delta Islands as water storage in wet water years. DWR and owners of specific central Delta islands had proposed the public and/or private water storage use of islands, and computer modeling had indicated it was feasible²⁰, but to test the effects, field studies were conducted when Jones Tract levee failed on June 1, 2004 according to the engineer who closed the DCC gate²¹, or on June 3, 2004 according to DWR & the later revised DCC operations log²². In any case, DWR had their practice run of the effects on water quality when a levee breaks, and also the water quality of the stored water that is later diverted to the export pumps. Photos from the Jones Tract incident were used, and continue to be used, as a media tool to give the impression the Delta levees are much more fragile than recent history indicates. The incident also was used to get reported \$90 million in federal “emergency” funding even though the state had received \$3 Billion²³ in water planning/infrastructure project funding in 2003!

Also from 2004 forward, many different flow schematics for the different versions of computer models of the Delta plus Suisun Marsh area were modeled and remodeled. How much water flowed in and out of the Delta in those models depended not necessarily on historical facts, but on who was doing the counting and which water conversion table was being used, the DWR one²⁴ or the more accurate ones used by USACOE and USGS²⁵. CALVIN²⁶, CALSIM²⁷ and CALSIM II²⁸, were the

¹⁴ http://baydeltaoffice.water.ca.gov/sdb/sdip/index_sdip.cfm and

http://baydeltaoffice.water.ca.gov/sdb/sdip/images_pdf/Figure6.2-1.pdf

¹⁵ http://www.water.ca.gov/frankstract/docs/Delta_Conveyance_Summary_Report_121007.pdf further divided into projects like

<http://www.water.ca.gov/frankstract/docs/Franks%20Tract%20Final%20VE%20Report.pdf>

¹⁶ <http://deltarevision.com/2012%20docs/construction/2012-ndip-projects-underway.jpg> or

¹⁷ <http://deltarevision.com/2012%20docs/construction/12-calfedupdate12-2011.jpg>

¹⁸ http://deltarevision.com/calfed_name_game_video.html

¹⁹ http://deltarevision.com/2011/Bacon_Island_Jones_Tract_field_studies.pdf or see video at

<http://www.youtube.com/watch?v=274M7dbotEk>

²⁰ <http://www.water.ca.gov/storage/> or <http://www.water.ca.gov/storage/indelta/index.cfm> and

http://www.water.ca.gov/storage/docs/In-Delta%20Project%20Docs/FINAL_Supplemental_In-Delta_Report.pdf

²¹ http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/wq_control_plans/2006wqcp/exhibits/append2/doi/doi-07.pdf

see page 17 that someone saved and submitted to the waterboards website showing the original DCC operations log.

²² <http://www.usbr.gov/mp/cvo/vungvari/Ccgates.pdf> see page 34 for 2004 gate operations (revised log)

²³ <http://deltarevision.com/COMMENTS/2003-over-3-billion-federal-funds.jpg>

²⁴ http://deltarevision.com/Issues/waterflow/video/NorthDelta_vs_NorthDelta/waterflow-graphics-2of3.pdf see slide 9

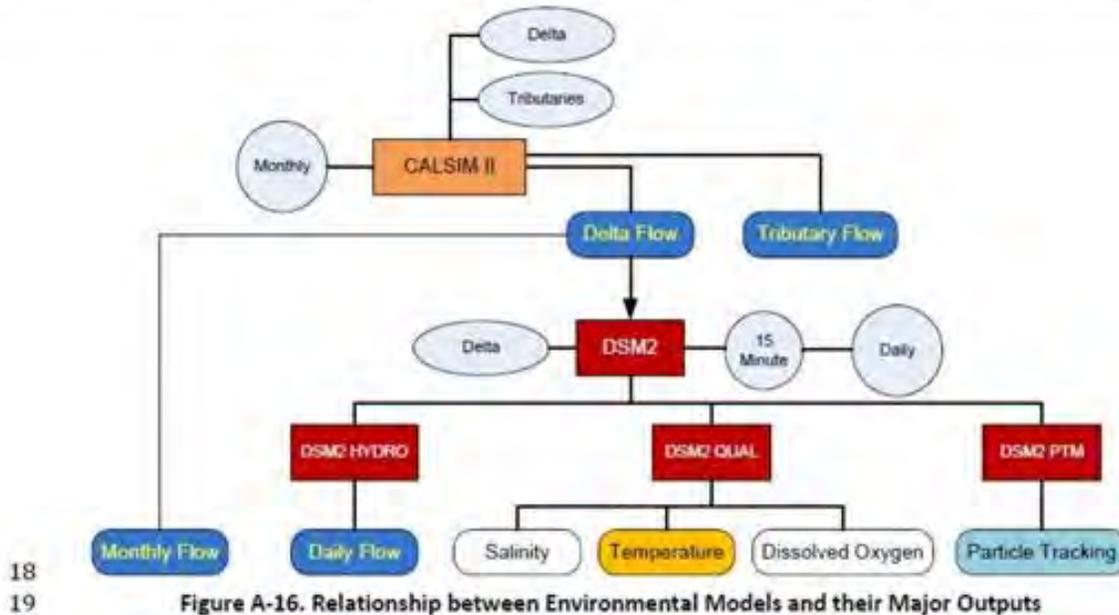
²⁵ http://deltarevision.com/Issues/waterflow/video/NorthDelta_vs_NorthDelta/waterflow-graphics-2of3.pdf see slide 9

²⁶ http://deltarevision.com/Issues/computer_modeling/2008-futures.jpg

²⁷ http://deltarevision.com/Issues/computer_modeling/calsim-sanjoaquin-schematic.jpg and

http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/WaterAnalysis_ITF.pdf page 38

computer modeling programs used to make the decisions regarding conveyance, but other models have also been used, including UnTrim²⁹, Delta Trim3d³⁰, DSM2³¹, UNET³², DICU³³, REALM³⁴, IGSM2³⁵, CVGSM2³⁶, Unet, RMA Delta Model³⁷, and WAM³⁸ to name a few. Notice the change in flow schematics for the different models. A combination of computer models were used for decisions leading up to the Delta Plan as shown in the graphic below:



From 2005 forward DWR and its allies proposed conveyance projects as regional projects in the names of flood control or restoration. In 2006 DWR and others funded studies at UC Berkeley³⁹ which resulted in publication of documents using incorrect Delta flood history. You might want to

²⁸ http://deltarevision.com/Issues/computer_modeling/calsim_input_waterflow.jpg And http://deltarevision.com/Issues/computer_modeling/calsimIIassumptions-for-modeling.jpg and http://deltarevision.com/Issues/computer_modeling/calsimIImap.jpg

²⁹ http://deltarevision.com/Issues/computer_modeling/UnTRIM_dicu_nodes.jpg and http://www.water.ca.gov/iep/docs/pod/UnTRIM_Calibration_Report.pdf

³⁰ http://deltarevision.com/Issues/computer_modeling/Delta_TRIM-hydrodynamic-model.jpg

³¹ [http://www.water.ca.gov/storage/docs/DSM2%20Docs/Document%20D2%20DW%20Ops%20\(Mierzwa\).pdf](http://www.water.ca.gov/storage/docs/DSM2%20Docs/Document%20D2%20DW%20Ops%20(Mierzwa).pdf) And http://deltarevision.com/Issues/computer_modeling/calibration-o.jpg and

http://deltarevision.com/Issues/computer_modeling/DSM2_limits.jpg and <http://www.water.ca.gov/dsm2pwt/> <http://www.safca.org/documents/combined20state20submittalssmall.pdf> page 271 or 574

³³ <http://www.water.ca.gov/bdma/docs/DeltaWithdrawalsReturnsLandUse.pdf>

³⁴ http://deltarevision.com/Issues/computer_modeling/realms-modeling-nodes.jpg

³⁵ See appendix of the Monterey-plus agreement, page 197 of 208

³⁶ <http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/LRAT-TechMemo2004-01-12.pdf>

³⁷ [http://www.water.ca.gov/frankstract/docs/\(8\)RMA-Calibration%20Report.pdf](http://www.water.ca.gov/frankstract/docs/(8)RMA-Calibration%20Report.pdf)

³⁸ http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/WaterAnalysis_ITF.pdf page 16

³⁹ http://deltarevision.com/2006_docs/2006-berkeley-envisionings.pdf.pdf And

<http://deltarevision.com/images/pdfs/2006ReEnvisioningDelta.pdf>

http://deltarevision.com/2006_docs/2006_DWR_delta_charterette.pdf and

review some of the different reports and studies produced in 2006⁴⁰, gathered on one page for easy access, or you can try to find the articles at their original publication sites. In 2007 the Delta Vision process was quietly started⁴¹, utilizing the incorrect maps and data generated, apparently during the 2006 UC Berkeley process. In August 2008 the Delta Vision group did a presentation at the Ryde Hotel, at which time myself and many other Delta land owners were told what others envisioned for the Delta. Even at that meeting it became clear that some of the data used in the planning process was not correct, based on Delta historical facts. This started my personal quest to understand the truth or facts based on historical documents, not based on media hype or fancy computer-generated studies⁴². The decision to revise the Delta was made in 1998, agreed to by non-Delta stakeholders in 2000, and only starting in 2008 were the stakeholders most negatively impacted by the 1998 decisions allowed to even know about sections the planning process! 2009 brought legislative changes⁴³ and more meetings, and the construction of sections of the conveyance plans moved forward.

Flood Control or restoration may have been a portion of the proposal, but the *function* of the overall projects resulted in additional conveyance of Sacramento River water away from its former Delta flow pattern. Hence, diversion of water away from the Sacramento River using the Folsom South Canal was labeled “flood control” but it actually can divert up to 100 million gallons per day⁴⁴ into the Mokelumne River system to reach the export pumps. Purchase of the McCormack/Williamson Tract was labeled as “restoration”, but the planned modifications to the adjacent waterways⁴⁵ and Dead Horse Island⁴⁶ will facilitate additional Sacramento River water exports. Installation of “fish screens” while new and more powerful water pumps were also installed⁴⁷ was labeled as “restoration” projects, but the function is to create new additional water export from the Sacramento River. Modifications to the levees on Boudin Island, Staten Island and along the Mokelumne River have been labeled “flood control” but the function is to allow additional freshwater flow for exports⁴⁸. And then we saw the “regional projects” that were local joint efforts, like the Freeport Regional project⁴⁹ that installed a new export pump on the Sacramento River to provide new sources of fresh water for EBMUD (SF Bay Area), and the Stockton Empire Tract water siphon⁵⁰, also labeled as a regional project but the function is new Sacramento River exports. We also hear about “reoperation” of the Delta Cross Channel gates⁵¹, which may be enlarged or permanently closed, depending on which final plan is built. There was also the new Victoria Tract water siphon⁵² built as a

⁴⁰ http://deltarevision.com/2006_delta_docs.htm

⁴¹ http://deltarevision.com/2007_docs.htm and

http://deltarevision.com/images/pdfs/2007_Aug_DVC_Item_2C_Addendum_to_SCG_Report.pdf

⁴² <http://deltarevision.com/2008links.htm>

⁴³ http://deltarevision.com/2009_documents.htm

⁴⁴ <http://deltarevision.com/2012%20docs/construction/fulsom-south-diversion.jpg>

⁴⁵ <http://deltarevision.com/2012%20docs/construction/2012-ndip-projects-underway.jpg>

⁴⁶ <http://deltarevision.com/2012%20docs/construction/12-calfedupdate12-2011.jpg>

⁴⁷ <http://deltarevision.com/2012%20docs/construction/2-calfedupdate12-2011.jpg>

⁴⁸ <http://deltarevision.com/2012%20docs/construction/superlevee-12.jpg>

⁴⁹ <http://deltarevision.com/2012%20docs/construction/6-calfedupdate12-2011.jpg> or <http://www.freeportproject.org/>

⁵⁰ <http://deltarevision.com/2012%20docs/construction/7-calfedupdate12-2011.jpg>

⁵¹ <http://deltarevision.com/2012%20docs/construction/thru-delta-plan-uses-freeport-intake-2007.jpg>

⁵² <http://deltarevision.com/2012%20docs/construction/8-calfedupdate12-2011.jpg>

regional project for CCWD, and currently under construction several new export pumps (labeled restoration due to the fish screens) north of Sacramento, one at Verona⁵³ and one planned for the Woodland/Davis new exports. Clearly, very substantial funds have been spent on the *conveyance* portion of the CALFED 2000 ROD, such that it appears by the end of 2013 or 2014 Sacramento River flow into the North Delta could be reduced⁵⁴ by more than 50% or down to perhaps 4,000 cfs of flow between the Freeport pumps and Ida's island or the southwest end of Grand Island. However, the flow gate at Rio Vista may indicate addition flow because of the increase in flow proposed for the Yolo Bypass area⁵⁵.

Which restoration projects have been done or are in process? In 1998 the levees of Liberty Island were breached to create a new wetland area. Studies are ongoing. The Yolo Bypass had been proposed for expansion, and the modifications to some of the levees have already been approved and have been under construction since approximately 2010⁵⁶. These restoration elements of the CALFED ROD also received regional project names even though the function continues to be part of the CALFED 2000 ROD. Examples of ongoing regional construction projects under construction or nearing completion in January 2012: Natomas⁵⁷, Yolo Bypass levee modifications⁵⁸, Folsom South, West Sac⁵⁹ and bypass modifications⁶⁰ to divert water into the Yolo Bypass and also prevent flooding in protected areas of Sacramento.

While conveyance and restoration construction plans moved through the approval process as regional plans, DWR, water exporters and their media allies conducted a campaign of distribution of false and misleading information about the current condition of the Delta levees, about Delta history, and even about the physical location of the Delta islands themselves. For example DWR and its media allies added Suisun Marsh islands to the Delta to inflate supposed flood history, counted island floods in areas where flood control *is the purpose* of the island, and counted floods from times before levees existed on the islands in an effort to inflate Delta flood history. Often quoted by DWR and media is that the Delta has flooded over 160 times in the last 100 years⁶¹. This is false. Look at the historical data⁶². Look also at the timeline below⁶³, noting that two thirds of the floods of the Delta in the last 100 years happened **before** the first joint effort at Delta levee improvements.

⁵³ <http://deltarevision.com/2012%20docs/construction/veronapumps-fishscreen.jpg> and <http://deltarevision.com/2012%20docs/construction/2-calfedupdate12-2011.jpg>

⁵⁴ http://deltarevision.com/Delta_maps/maps/water_flow_use/ss-reduce_flow.JPG

⁵⁵ http://deltarevision.com/sacramento_river_and_yolo_bypass.html

⁵⁶ http://www.yolobasin.org/bypass_strategy.cfm?useFigures=true

⁵⁷ <http://www.safca.org/documents/combined20state20submittalsmall.pdf>

⁵⁸ <http://deltarevision.com/2012%20docs/construction/yolobypass-egberttrace-2012construction.jpg> and <http://deltarevision.com/2012%20docs/construction/egberttractjan2012improvements-safcaplans.jpg>

⁵⁹ <http://deltarevision.com/2012%20docs/construction/westsidelevees.jpg>

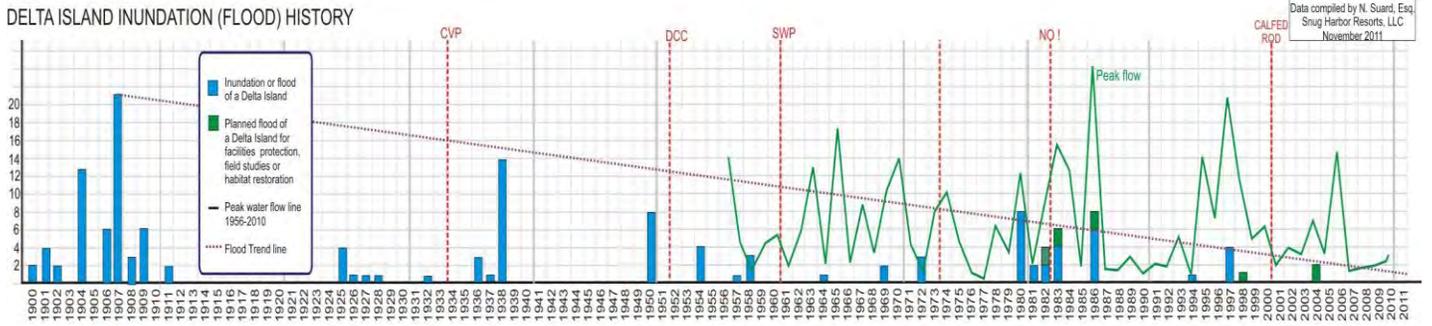
⁶⁰ <http://deltarevision.com/2012%20docs/construction/bypass-dec2011.jpg>

⁶¹ http://deltarevision.com/Delta_maps/Floods-Islands-Levees.htm

⁶² http://ryerisland.com/images/floods/delta_floods_final.pdf http://deltarevision.com/2011/historic-timeline/historic_maps/timeline_delta_levee_failures.pdf

⁶³ http://deltarevision.com/Issues/delta_floods_timeline.jpg

After the levee improvements proposed by DWR during Governor Brown's last tenure as leader of the state, there have been only a handful of unexplained or accidental floods, not counting the controlled flooding of islands, as shown by the declining flood incident trend line from 1900 to 2010: (below is a small section of **Attachment B series** ⁶⁴)



When DWR decided to add the Suisun Marsh to the Delta studies, it created confusions when combining data for reports, which was manifested in the DRMS Phase 1 Final Report published in 2008⁶⁵, and corrected two times in 2009⁶⁶, but the Delta Plan decisions are based on the incorrect data found in the technical studies of DRMS Phase 1. The various versions of the studies, and examples of corrections⁶⁷, are still available online. Even the draft Delta Plan utilizes data from DRMS Phase 1 that has been shown to be incorrect.⁶⁸

As another example of the campaign to falsify and confuse Delta history, one of DWR's allies has been the prominent online mapping service. This particular online mapping service has the contract to provide mapping services to state and federal government agencies, and for some unexplained reason starting in 2005 the online mapping service began to confuse the location of Delta Islands⁶⁹ and waterways; the problem persists even today. One of the effects of online mapping services confusing Delta Islands and waterways is that scientists and their published reports which also relied on the veracity of the online maps, ended up using false island data, which leads to false or at least

⁶⁴ <http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT%20B.pdf>
<http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-B-6.pdf>
<http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-B-2.pdf>
<http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-B-3.pdf>
<http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-B-4.pdf>
<http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-B-5.pdf>

⁶⁵ http://www.science.calwater.ca.gov/drms/drms_irp.html

⁶⁶ http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/phase1_information.cfm go to the bottom of the page to note the March 2009 revision and the bottom of the page to note the December 2009 page. However what was revised is left to the view to decide.

⁶⁷ http://ryerisland.com/images/smalls/drms-using_maps_to_hide_mistakes.jpg

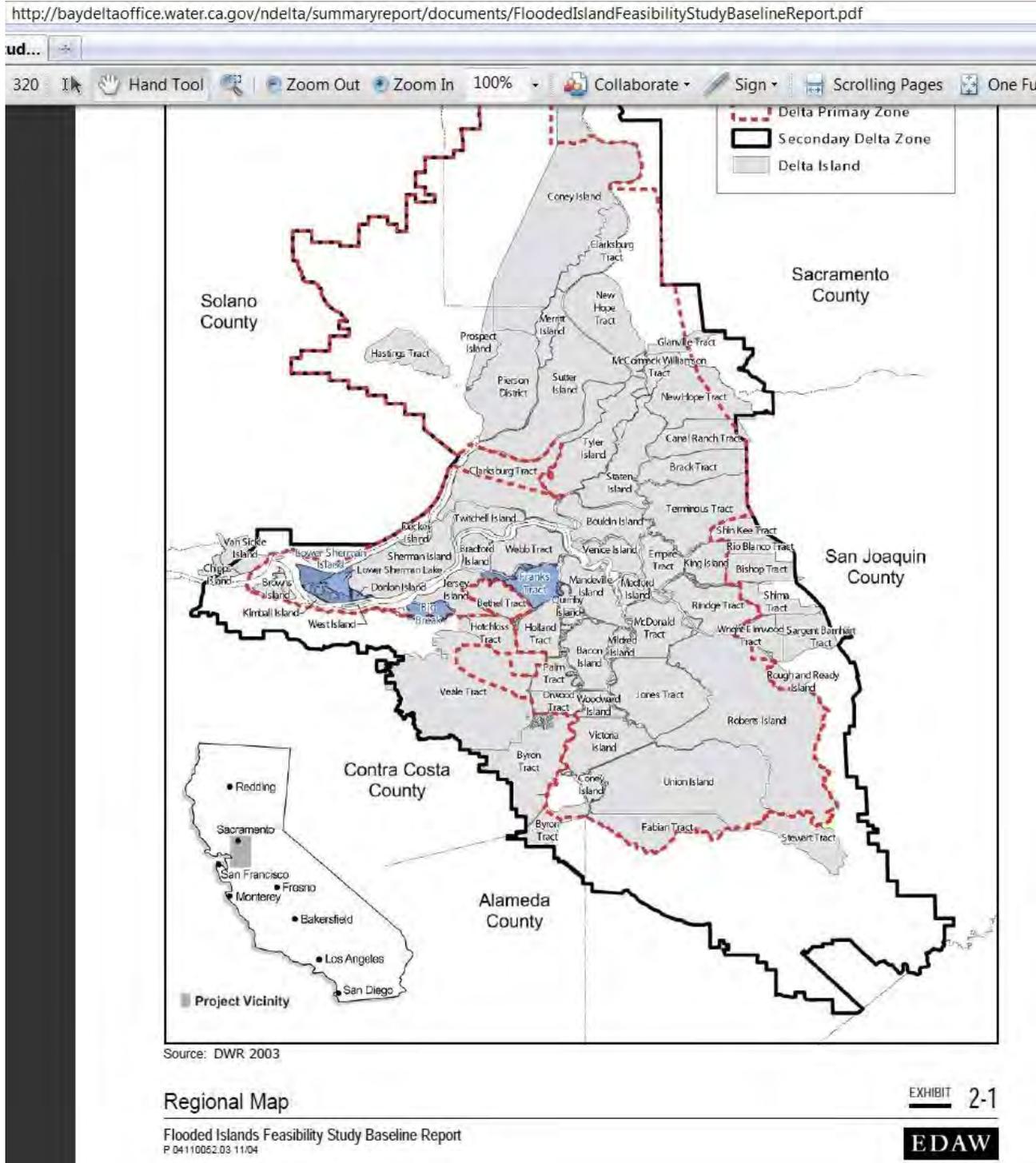
⁶⁸ <http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-B-6.pdf>

⁶⁹ http://deltarevision.com/2011videos/wrongmaps/2005Mount_study_grand-ryer.jpg and
http://deltarevision.com/2011videos/wrongmaps/noaa_sacramento_river_wrong.jpg
http://deltarevision.com/Issues/wrong_maps_data/mwd-dwr-drms/DELTAVISION/delta_vision_wrong.JPG
http://deltarevision.com/2011videos/wrongmaps/snugharbor_on_sevenmile_slough.jpg and
http://ryerisland.com/images/maps/gm_wrong_ryer_tyler.jpg and
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http://deltarevision.com/Issues/wrong_maps_data/missing_84_220_jmac.jpg and
http://deltarevision.com/2011videos/wrongmaps/2004_DWR_missing_Ryer.JPG
http://deltarevision.com/2011videos/wrongmaps/sacramento_river_2003-dwr.jpg
http://deltarevision.com/2011videos/wrongmaps/sacramento_steamboat_switch2006.jpg

faulty results. For a collection of wrong maps of the Delta produced by different scientists and DWR contractors, go to <http://deltarevision.com/wrong-maps-of-the-delta.html> In the meantime below is a classic wrong map of the Delta that came from the “Flooded Islands Feasibility Study” of 2005 referenced in Delta Plan materials, a study used to validate plans for In-Delta storage.

(see next page)

If the scientists do not know which islands they are studying and proposing for flooding, how can one even consider acting on their proposal? (And for those who do not know the correct Delta island names and locations, the map below is incorrectly lists the location for Pierson District, Ryer Island, Coney Island, Merritt Island, Sutter Island, Grand Island, New Hope Tract, Clarksburg Tract, Brannen Island and Andrus Island.)



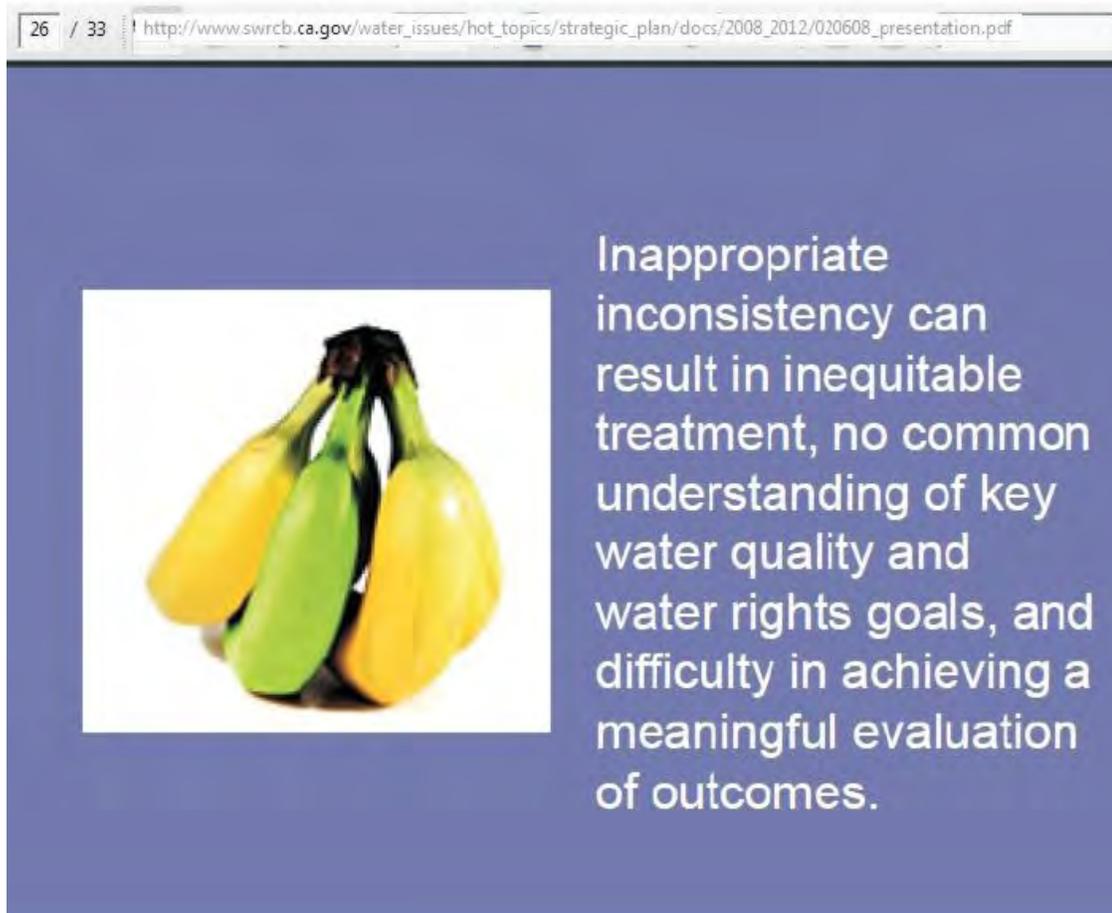
The Delta Plan was drafted using the same process as the CALFED 2000 ROD. The decisions were made long ago by those not interested in protecting Delta landowner rights, and by persons not concerned about the long term negative impacts to Northern California aquifers and natural environments. And now, in January 2012, after most of the conveyance sections of the CALFED preferred plan have already been approved as regional projects and have been built or are under construction, we are given the “opportunity” to comment. My comments (see Part 2) will be based on a review of past DWR publications and the conflicts in data used to develop the new Delta Plan. Since I believe the Delta Plan is silent or does not address some important logical long term effects to the Delta and Northern California, I will also comment on what is NOT included in the Delta Plan. Actually what is not included is more important than what is. My comments are based on topics or themes with reference to specific applicable clauses or data of the Delta Plan if available.

Please go to Part 2

SPECIFIC COMMENTS SUBMITTED TO THE DELTA STEWARDSHIP COUNCIL REGARDING THE DELTA PLAN ... PROCESS AND USE OF DATA

COMMENTS submitted by Nicole (Nicky) Suard, Esq., Managing Member, Snug Harbor Resorts, LLC
<http://snugharbor.net> sunshine@snugharbor.net

The following general and specific comments and suggestions are submitted regarding the Draft Delta Plan, Program Environmental Impact Report as it appeared online in November 2011, and on the CD handed out by the DSC at meetings, and including the 5th Staff Draft Delta Plan and sections of the BDCP, as both are incorporated by reference to the Draft Delta Plan EIR/EIS. I find there are substantial inconsistencies between data used in the Delta Plan and BDCP drafts, which should be resolved *prior to enactment of a Delta Plan*¹. Please note the following statement by a state agency representative as shown on the slide below: ***“Inappropriate inconsistency can result in inequitable treatment, no common understanding of key water quality and water rights goals, and difficulty in achieving a meaningful evaluation of outcomes.”***



¹ <http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-C.pdf>

Comments and suggested solutions are provided by topic rather than a chronological order of Delta Plan chapters, with a focus on how the Delta Plan uses inconsistent data which will result in inequitable treatment of Delta land owners and businesses, and which has resulted in no common understanding of key water quality and historical water rights. The inconsistency continues to make it difficult for anyone to make a meaningful evaluation of the projected outcomes. See Attachment E² which will be referred to below for more graphical examples of inconsistent use of data by the Delta Plan and/or BDCP drafts.

Comments & Solutions:

1. **Salinity compared:** 1 ppt and x2 (Delta Plan Section....)

To avoid inconsistency and inequitable treatment of Delta land owners, The Delta Plan should require that the BDCP and others related to water quality refer only to the historic Salinity standard of less than **1 ppt** for water quality standards for in-delta use should be included in the Delta Plan, with specific incorporating reference to the NDWA contract. (See [Attachment E](#), first four pages) The Delta Plan should specify minimum water quality and minimum water flow *for each natural or original waterway* of the North Delta or Sacramento River watershed within the Delta, as the watershed was defined prior to 1995. Water quality monitors should be placed at the location where salinity intrusion is most likely to initiate based on managed flows and/or drought conditions and/or breach of a Delta island for water storage or restoration. All waterway and monitoring data must be easily accessible to the public and posted online. No new contracts for any diversions from the Sacramento River watershed should be allowed if such contract would reduce in-delta flows below the minimum allowed on any natural waterway. Natural Delta waterways are defined as Sacramento River courses that were navigable in 1852 to 1860s, per the maps and descriptions of the first official survey of the Sacramento River from below Rio Vista to Sacramento, and including Steamboat Slough, “Old River” Sacramento and Sutter Slough. See **Attachment H**³ for sections of original maps and Attachment D⁴ for the importance of the waterways).

Delta Dimensionality Considerations-2-dimensional flow model is needed to be applied during low flows in certain reaches when gravitational circulation might be carrying more saline water and nutrients upstream along the channel bottom on a net tidal cycle basis. If there are no monitors located at the confluences of Steamboat Slough with Cache Slough, and Sacramento River south of Ida’s Island (Viera’s) saline water may encroach without detection and begin to cause damage to the aquifer of this area, degrading the drinking water for this area of the Delta. In addition, encroachment of saline water into the North Delta is a breach of the NDWA contract. . Restoration projects that could create the possibility of salinity encroachment above 1 ppt north of Rio Vista should be prohibited due to the impact on prime farm lands of the Delta. These natural waterways

² <http://snugharbor.net/images2012/DELTAComments/ATTACHMENT-E.pdf>

³ <http://snugharbor.net/images2012/DELTAComments/ATTACHMENT-H.pdf>

⁴ <http://snugharbor.net/images2012/DELTAComments/ATTACHMENT-E.pdf>

should also be maintained for navigation per previous plans and legislation passed or approved between 1880 and 1990⁵.

2. **Sacramento River historical flows compared:** 15,000 to 21,000 TAF (Delta Plan Section ...)
- When one reviews the water plans of the past, and the reports and studies leading up to this new Delta Plan, inconsistencies in how water volume is calculated is seen. Specifically, DWR flow modeling uses a different flow conversion chart than USGS and other scientific agencies, which results in an inflation of water available for export, leaving less water available to flow through the North Delta waterways of Steamboat Slough, Sutter Slough, and a portion of the lower “Old River” Sacramento. Since the new Delta Plan was conceived and planned over the last ten years, and well before the 2009 documents the Delta Plan uses as reference, the inconsistencies found in water calculations and computer modeling used by DWR for CALSIM and CALSIM II should be reconciled and corrected to reflect volume calculations based on standard conversion tables, if accuracy is a goal of the Delta Plan. This issue was brought to the attention of the ISB in 2010 and reference material are included in this comment/statement; see **Attachment F**⁶ and **F-2**⁷ and if interested in the details, see the documents and video presentation at the following links:
http://deltarevision.com/it_depends_on_who_is_counting.html
http://deltarevision.com/Issues/waterflow/video/NorthDelta_vs_NorthDelta/waterflow-graphics-2of3.pdf

(map next page)

⁵ <http://snugharbor.net/images2012/DELTAComments/ATTACHMENT-E.pdf>

⁶ <http://snugharbor.net/images2012/DELTAComments/attachment-F-flows.pdf> and

⁷ <http://snugharbor.net/images2012/DELTAComments/ATTACHMENT-F-2.pdf>

Sacramento-San Joaquin Delta

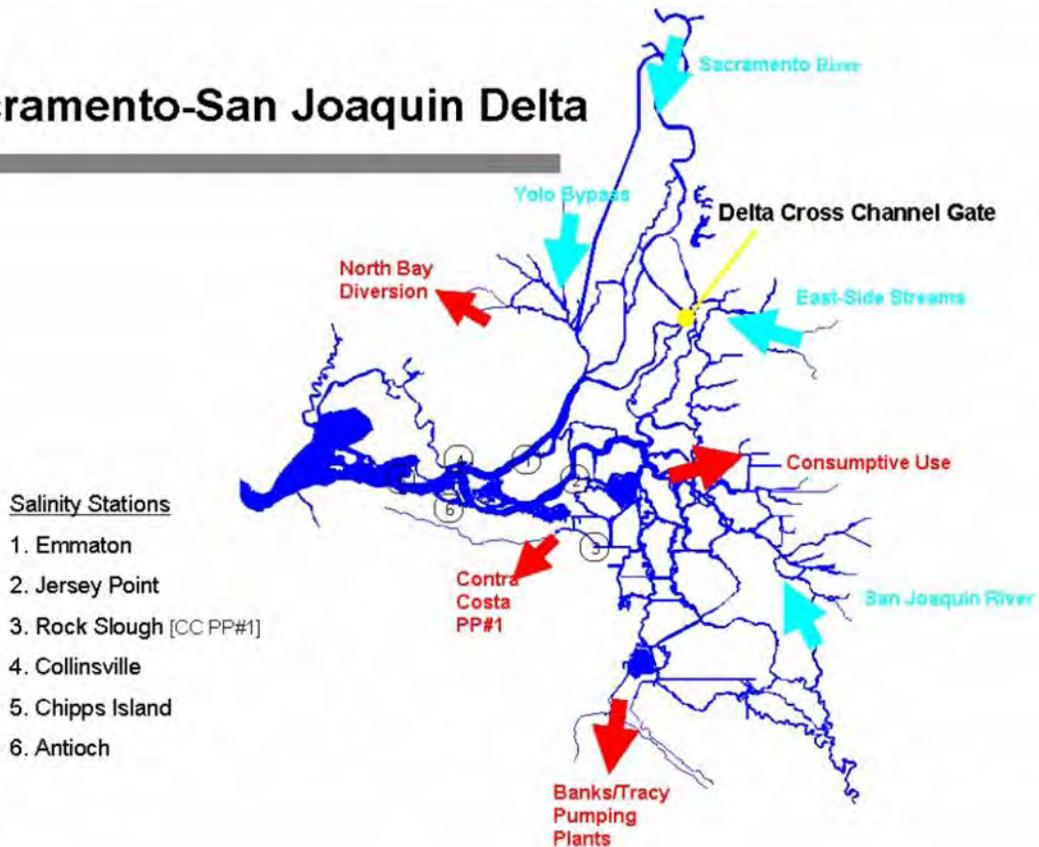


Figure 3-1 Sacramento-San Joaquin Delta

Map above show the past actual physical flow and modeling schematic for that flow. After 2007 the computer modeling schematic was altered so that just on paper the Yolo Bypass flows are counted as part of the Sacramento River flow in the North Delta, even though the water does not physically flow that way. This change was most likely done to inflate Sacramento River flow in order to validate export percentage flows. (personal opinion)

3. **Sacramento Valley, Delta and Bay Area aquifer recharge:** Delta Plan Section ...
- According to the “system reoperation” summary flow map, flow on the Sacramento River through the Delta is proposed to average 15,070 Thousand Acre Feet (TAF) including the Yolo Bypass flows of 4,000 TAF or more per year. That means, in effect, where the North Delta historically received 18,000 to 21,000 TAF per year of fresh Sierra water, the North Delta will instead receive 11,000 TAF at most. That amounts to substantially higher percent of flow reduction on the Sacramento River in the North Delta region than what was previously reported or modeled. It would mean the North Delta waterway flows might equal what would be experienced in drought times like the late 1970s⁸, but for this area it would a sustained “drought” due to the sustained diversion of Sacramento River water. The Delta Plan indicates average flow into the San Francisco Bay will be 15,000 TAF on average per year, but the plan fails to address the fact that

⁸ <http://snugarbor.net/images2012/DELTACOMMENTS/ATTACHMENT-E.pdf> go to the pages on California aquifers, pages 5-8

the quality of the water flowing on the Sacramento and San Joaquin Rivers through the Delta will be substantially degraded, once the recycled water from NorCal communities and the salt and selenium concentrated Westlands runoff are “recirculated” into the Delta. In effect the Delta and bay receive not just a drastic reduction in fresh water flow, but also a substantial assumed reduction in water quality, which will eventually effect the aquifers of the entire area. Section 3 of the Delta Plan assumes “no long term significant effects” on the NorCal aquifers, but provides no clear data proving their assumption, and no mitigation measures should the Sacramento Valley, Delta and SF Bay aquifers show quality decline and salinity encroachment due to actions of the Delta Plan or thereafter. Common sense says that if you had a full glass of clean drinking water, and you poured out 1/3 of the water and replaced the water with treated sewage water and water with high concentrations of salt and selenium, that the glass of water could no longer be used for human consumption. The same common sense applies to a small glass in the same way it should apply to a large aquifer. In summary, the long term impacts to Sacramento Valley, Delta and SF Bay area aquifers are not adequately addressed in the Delta Plan.

4. Definitions used in the Delta Plan: Inconsistencies create confusion...

Any new or revised meanings must be stated within the narrative of the document, and must also provide the former definition of the same word or phrase. For example, if the definition of a flooded island has been revised to include scour holes when in former documents scour holes were not included, the revised definition and the reason for the revision must be stated within the narrative description. Another example is the confusion caused by the Delta Plan’s renaming of historic waterways, such as was found on page 8, section 8 of the Delta Plan. The photo below is actually of Ryer Island with Steamboat Slough the waterway on the left and the Sacramento Ship Channel/Cache Slough on the right. The caption included in the Delta Plan gives the waterways different names, but does not provide reference as to how, when or why the waterways are proposed to be renamed. Given that the drafters of the Delta Plan have closely studied the Delta lands and waterways, the caption can not be a mistake but an intentional renaming of a historic waterway. The Delta Plan should give plausible reasons for renaming common land and water features prior to publication and use. Given the long term history of both Ryer Island and Steamboat Slough, I am opposed to the renaming of both of these locations in the Delta. (screen print below)

1 **Figure 8-6**

2 **Aerial View of Agricultural Land**

3 *The photograph shows the confluence of Elk Slough (left) and the Sacramento River (right), looking south. This*
4 *provides a sense of the various textures and color schemes provided by agricultural land in the Delta. Note the right*
5 *angles, concentric line series within agricultural plots, and the variation of greens and browns, indicating fields at*
6 *different production stages.*

7 *Source: Photograph taken by EDAW (now AECOM) in 2009*



If the viewer is interested in seeing the wrong maps of the draft BDCP, see Attachment J⁹ and Attachment C¹⁰ for the Delta Plan maps reviewed

(please go to the next page)

⁹ <http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-J.pdf>

¹⁰ <http://snugharbor.net/images2012/DELTACOMMENTS/ATTACHMENT-C.pdf>

Another inconsistency and certainly an irony is that the Delta is often referred to as the “hub” of California’s water system, but the map showing the groundwater basins of California fails to define the Delta area. If this is a “DELTA Plan, shouldn’t there be consistency in recognition of the location of the subject of the plan?

1 **Figure 3-5**
2 **Groundwater Basins in the San Joaquin Watershed**
3 *Source: DWR 2003*

Where's the Delta?



014

5. Delta Transportation and Access (Section 19 of Delta Plan):

Section 19 reviews major roads of the Delta, but is silent regarding impacts to the more minor roads, and long term impacts to Delta through flow of traffic. Elimination of islands and roadways will have a negative impact on transportation and access, which in turn will have a residual negative impact on recreation and overall income from agriculture and recreation due to the increased cost associated with driving further distances around inaccessible areas. Navigation is a valid and historic¹¹ form of transportation in the Delta and Bay Area, and actions taken under the Delta Plan have the potential to severely limit both navigation and road travel in the Delta not just during construction time but also thereafter. For example, permanent closure or blockage of the Delta Cross Channel gates will limit boater navigation between the Sacramento River and Mokelumne River, which was possible prior when California first became a state and is still possible when the DCC gates are open and its low tide. Continued navigation on all historical waterways of the Delta should be protected, and use of county and levee roads that have been open to the public should also be protected. In addition, as a mitigation measure, the Delta Plan should suggest that permanent road signs be placed at all Delta road intersections, and that large size junction signs with solar lighting also be placed in higher traffic areas of the delta and at the road entrance to each public accessible island of the Delta. The sign should include the name(s) of the roadways at the junction as well as the island being approached or entered. DWR should also encourage the repair or replacement of the Real McCoy Ferry, that has not been operating since September 2012, which has caused substantial transportation hardship for North Delta residents who regularly used the ferry. And please note that contrary to the Delta Plan statements, CalTras online data indicated the former Real McCoy Ferry carried 400 or more vehicles per day on average and up to 700 on week ends, per CALTRANS online reporting. ATTACHMENT N. The reduced numbers reflected in the Delta Plan are due to the fact the older ferry kept breaking down and the new ferry, which replaced the old ferry, breaks down even more!

6. Use of existing public lands within the Delta: The Delta Plan should clearly direct that Conveyance or Restoration projects must be planned and completed using only public lands first, and on nonprofit owned or managed lands, second, if public funding was used to purchase the nonprofit-owned land. For example. Public funds were reported to be used to purchase Staten Island, so Staten Island should be one of the locations targeted for restoration or conveyance as determined by studies and planning, so long as such use does not negatively impact other private property uses within the Delta. In addition, restoration projects that could create the possibility of salinity encroachment above 1 ppt north of Rio Vista should be prohibited due to the impact on prime farm lands of the Delta. No privately-owned lands should be condemned for use in conveyance or restoration projects until all public land use has been exhausted, and additional land use becomes necessary. In addition, if any private lands are sought through condemnation proceedings, the state can only utilize the property for the specific purpose stated, and the original property owners shall have the right to retain mineral rights for the lands claimed via eminent

11

domain proceedings. Creation of this rule within the Delta Plan would help to assure landowners that the target of an eminent domain proceeding is truly for the stated purpose and not for an underlying purpose like capture of mineral rights that attach to the property unless stated otherwise.

7. **Recognition of negative impacts due to restoration or conveyance actions:** (See Attachment K) An example set by the restoration projects on Steamboat Slough, off Grand and Ryer Islands. The Delta Plan does not seem to address actual possible impacts of restoration actions already built and under study. The Delta Plan should assure that the BDCP, when incorporated fully into the Delta Plan, recognizes and mitigates for actual physical negative impacts to land owners affected by the restoration or conveyance projects. For example, all of the land owners along the Snug Harbor peninsula have seen an increase of high water incidents on our lands over the last 10 years. Prior to the Liberty Island flooding and the DCC closure experiments, we might have had one “high water” event every 10 years, and it always coincided with record rain flows. High water incidents at Snug Harbor is defined as standing water on the access road of the peninsula, and between six and 12 inches of river water encroaching into the lower yards of some areas of the peninsula, during one high tide period at least one day. The water here simply rises like a bath tub being filled up-its not rushing flood waters as portrayed in the media. However, since 1998 we’ve experienced a high water incident approximately every 2.8 years which is about triple the number of high water incidents based on local historical records. One of the main causes of the back up of water seems to be the “bottle neck” effect created by the Grand Island restoration project south of Snug Harbor, coupled with the levee berm added to Ryer Island on Steamboat Slough, south of Snug Harbor also. The two projects combined to reduce the width of Steamboat Slough to 150 feet, half of its former width in that area. While land owners who live on the river know to expect and prepare for floods, it is not right for DWR to intentionally or negligently cause rising waters on private properties in the name of “restoration”. If the repeated flooding of Snug Harbor about every 2.8 years is planned to continue, DWR should also plan for mitigation measures that would pay for clean up of properties after the floods, and also repair damages caused by the excess back up of waters. In addition, the BDCP should include in its planning for setbacks of levees in the area mitigations for impacts to the landowners that could be further affected by the BDCP plan to convert at least portions of Steamboat Slough and/or Sutter Slough to shallow habitat for a portion of the year.
8. **“Use of Eminent Domain actions for lands needed for conveyance or restoration:** The Delta Plan could establish a “Value added to others” measure of value for privately-owned lands targeted for eminent domain under the Delta Plan. In order to discourage planning for unnecessary take of private lands, the Delta Plan should state that compensation to private land owners should be no less than 250% of the highest established market value of the land. Highest value time period can range from 1998 to the time of an actual eminent domain process instigation by the responsible state agency. The “Value Added to Others” rule would apply to privately owned lands needed for conveyance, restoration and any buffer zones, if the buffer zone restricts use of the private lands. The higher valuation method is proposed to recognize and help compensate the families who will lose family homesteads and lands that have been family-owned

for many generations, a special class of ownership that carries sentimental value as well as economic value. In any case, land owners shall retain the mineral rights if such existed with the property, as is the case with many Delta properties that remain in the same family for many generations. Other alternatives to consider when privately-owned lands are needed for conveyance or restoration, could include the offer to “trade” lands of like kind and use, and would necessarily include the requirement that family homes and historic or sentimental structures would be moved to new “trade” site, with all expenses covered by the state or implementing agencies. Legislative changes to tax laws would be requested by the DSC such that there would be no tax impact to Delta private land owners who agree to the “trade” of lands instead of undergoing eminent domain process, even if the net result is a benefit of newer or better housing and lands for the displaced Delta land owner.

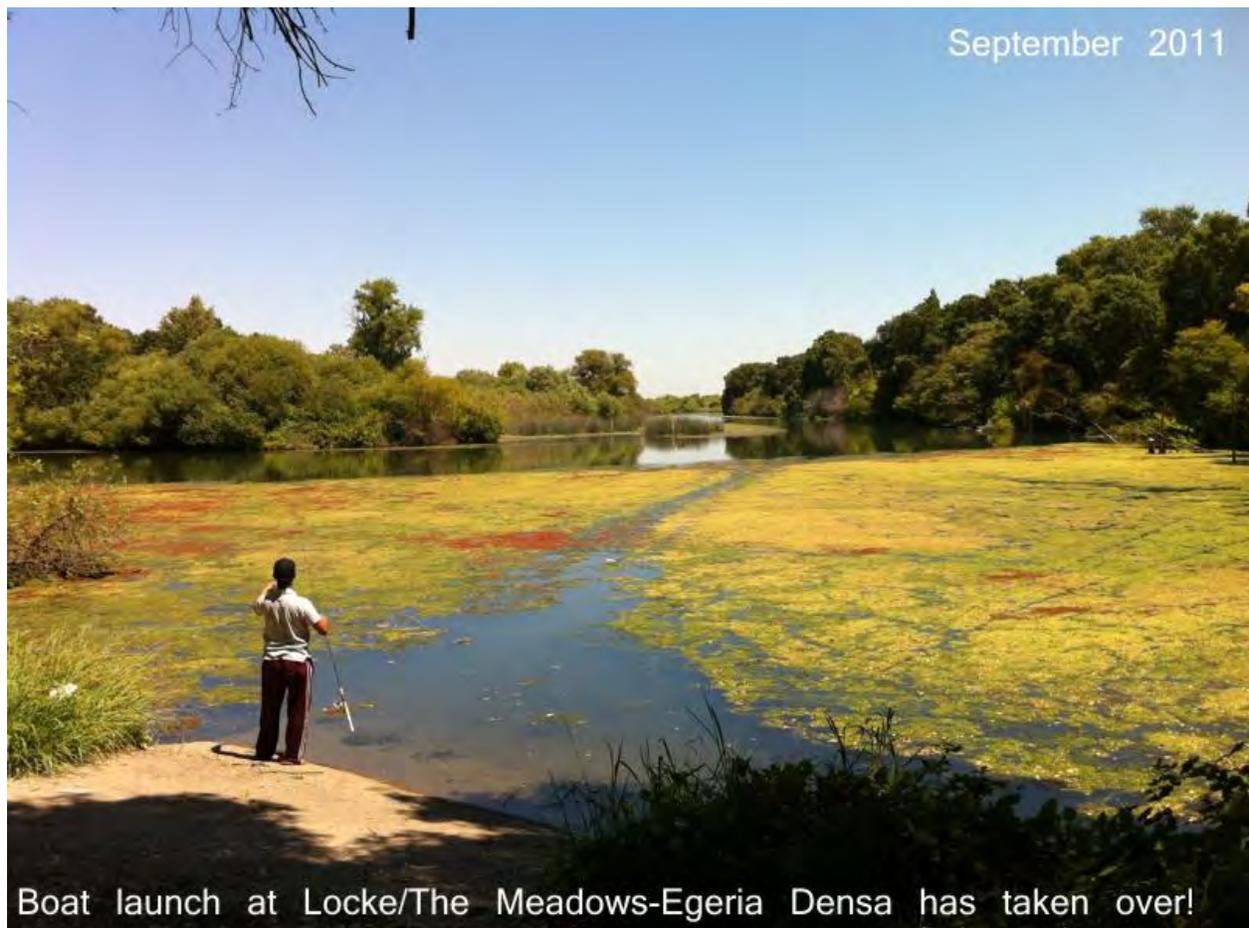
9. **Preserve Delta History:** Delta history has been revised several times in last few years, with important facts omitted. For example, the first section of the Delta Plan fails to recognize that the state SOLD the lands of the Delta specifically to be reclaimed to be used for irrigation. Another example is the lack of historic details that PGE and its related power companies over the years have played in the development of dams that prohibit water flow into the Delta, and the impacts of PGE actions on the Delta, including the use of McDonald Island for natural gas underground storage, and the possible impacts of additional withdrawal of natural gas which can cause further subsidence of Central Delta islands. The Delta Plan should direct that a detailed summary of Delta history be compiled by DPC or a consultant, to be reviewed and approved by delta area land owners, validated with corroborative independent maps and publications, and then published, and all subsequent reports that refer to the Delta will be required to use the verified Delta History and refer to the document. Note that I have a collection of incorrect Delta maps and Delta data published by DRW, its consultants or scientists, and the state should make an effort to notify the publishers of incorrect data to make corrections. You might start with DWR and PPIC and those who still refer to the original DRMS Phase 1 Report published in 2008, containing false data regarding Delta Island flood history, Delta seismic risk, and Delta elevations in some areas, which was partially corrected in December 2009, but many writers even as late as December 2011 continue to use the incorrect data from the DRMS technical attachments.

10. **Delta Recreation and Agriculture:** Delta Plan Section ...

The Delta should be recognized on the state travel website as a unique defined destination recreation and agriculture area of historical significance. The Delta is the cornerstone of state’s water supply system, navigation history, prime farm lands and has maintained its rural charm. One of the best ways to promote the Delta recreation and agriculture is to consistently recognize the area in state literature and at public shows and displays. For example, the state display at the most recent fishing & boating show in Sacramento, last week end, did not recognize the existence of the Delta at all. Instead, the focus of the DWR display was lakes located in other areas of the state, when the Delta Region is within two miles of the boat show! Obviously the state says one thing, but does another when it comes to Delta recognition and promotion. The effort to designate the Delta as a National Heritage Area is still not clear on how it will help promote the Delta as a unique destination.

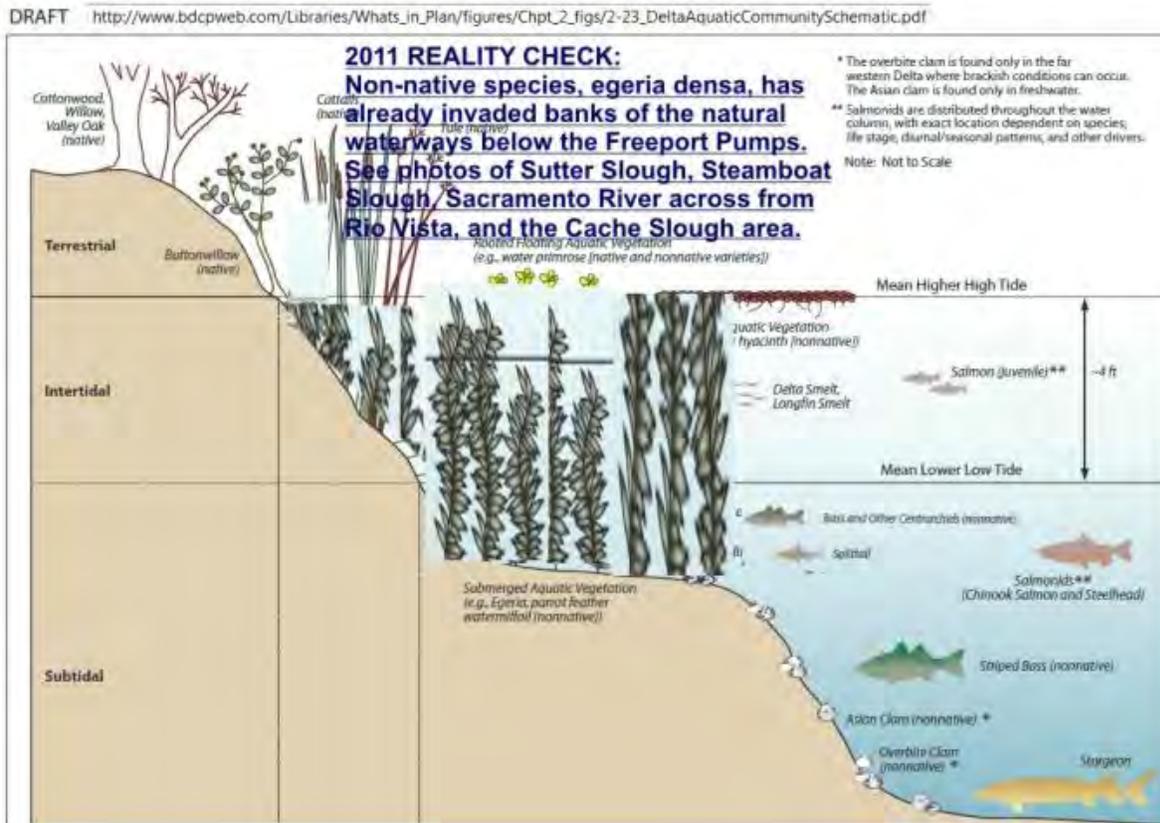
11. Mitigation for Invasive Species: Delta Plan Section ...

See Attachment G. Inadequate mitigation for effects of low water flow that lead to the growth of non-native aquatic species: The Delta Plan does not adequately recognize the long term effect of reduction of fresh water flow in the North Delta, which will increase the infestation of egeria densa along the banks of navigable waterways and will clog sloughs and areas that once were good fish spawning habitat. Lower water flow, especially in summer and fall months, will expedite the increased growth of non-native aquatic species, and the Delta Plan provides neither mitigation nor funding sources to take care of this long term problem. Below is a photo taken in fall 2011 at the “meadows” area boat launch. Attachment G provides other recent photos of egeriea densa, duck weed and other invasive aquatic species at the Decker Island restoration area, along Steamboat Slough, and other water weeds in other areas of the Delta. Increased water exports will further exasperate the situation without adequate plan for mitigation, an issue basically ignored by the Delta Plan cost estimates, not just the proposed actions.

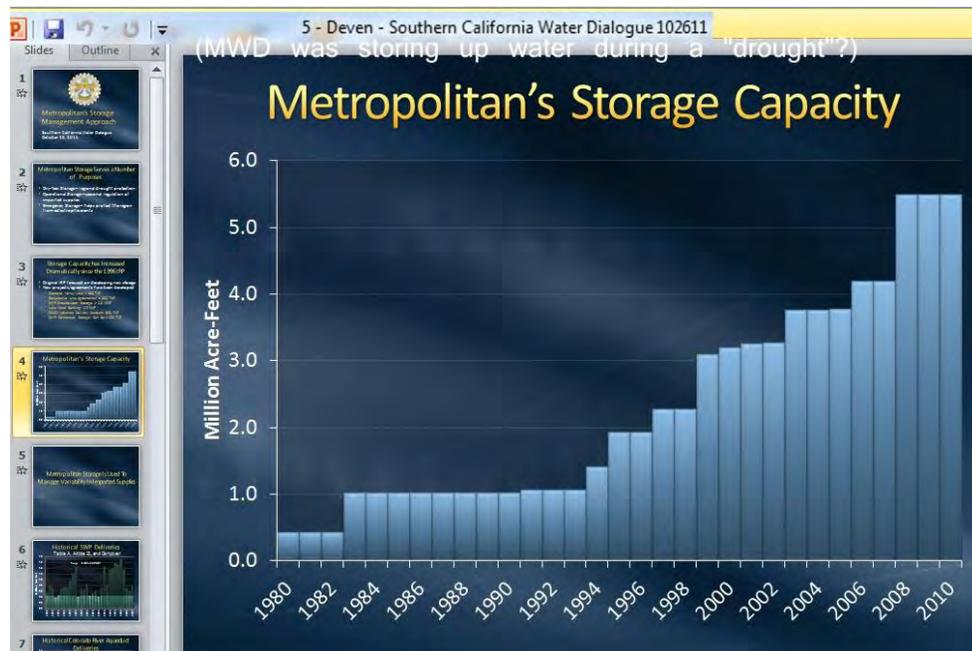


The spreading problem of invasive aquatic species in the Delta may be one of the major factors limiting the effectiveness of the proposed channel shelf berms or projects because the submerged area intended to be a refuge for smaller fish will instead be infested with aquatic weeds, thereby limiting access to the small fish. Most locals say the egeria densa along the banks of Steamboat Slough and the Sacramento River, in the

Meadows area, on Snodgrass Slough and along smaller tributaries of the San Joaquin River, and in Franks Tract (until treated) is the worst condition or infestation in anyone's memory. The increase in *Egeria densa* seems to coincide with the increase in exports to other areas of California. Perhaps its time to add 10% to the cost of the exported water to pay for Delta waterway clearing programs that will be needed due to the extra exports?



During a "drought" period MWD was able to store up extra water at the same time as invasive aquatic species grew substantially, and fish populations declined dramatically. Has the BDCP addressed this connection?



11 **.Discrimination:** The Delta Plan as written discriminates between one class of persons for the benefit of another class of persons. If one of the coequal goals is to assure a reliable drinking water supply, that goal should be achieved equally within the Delta watershed as without. If too much fresh water is exported, the result will be provision of fresh water to non-Delta residents at the expense and detriment of in-Delta residents, who hold original water rights.

12. **Revising the legal Delta Region to include the Suisun Marsh area:** The Suisun Marsh area has been the subject of planning and restoration through two SF Bay Area organizations, the BCDC and the SF Estuary Project. Until a few years ago, the Suisun Marsh was never listed as part of the Delta region, and it was not legislatively included in the legal Delta region when the region was defined and approved. To make changes now by adding the Suisun Marsh to the Delta appears to be an intentional creation of confusion and conflict for an unknown long term purpose. If approved in the Delta Plan, there will be overlap and duplication or conflict of planning between the BCDC, SF Estuary Project, and the BDCP and Delta Plan. There is no stated logical purpose to include the Suisun Marsh area as part of the Delta at this time.

13. **Matters of silence:** One cannot comment on important facts or considerations that are not in the Delta Plan. For examples: Why does the Delta Plan ignore the impact of subsidence due to extraction of natural gas below the Delta? Will drilling for oil in the Antioch area be allowed and how will this impact the area water quality? Why does the Delta Plan ignore the impact of the PGE-owned/managed dams north of the Delta which most likely contribute greatly to the loss of fish spawning areas and provide only enough energy for conveyance of water to Southern California? Why doesn't the Delta Plan acknowledge and list all the interim conveyance projects, flood control projects and restoration projects already underway or nearing completion which are basically pre-approved under the Delta Plan? Why does the Delta Plan ignore the fact that many of the farms held by the same families for many generations hold mineral rights to the property and the state wants to own those mineral rights, so have targeted Delta lands for "conveyance or restoration" if they have known oil and natural gas reserves below, so the state can validate eminent domain of those properties? Why doesn't the Delta Plan provide accurate elevation data for the targeted areas, when such data is available? Finally, why does the Delta Plan drafters (and BDCP, incorporated by reference) intentionally misrepresent the location of Steamboat Slough and the property owned by this commenter? (see attachment J) What reasonable purpose does this serve?

(go to next page)

In summary, the Delta Plan was determined long ago before there was opportunity for meaningful input by the “stakeholders” who will be most negatively affected by the plan. In any case, at the meetings I attended, and the agency representatives I’ve met with, I have simply asked that the public be provided with verified facts about the Delta, not just the media hype. The Delta Plan might be a good time to start correcting the false data disseminated by DWR and its allies over the last 8 or more years. Taking action to revise the Delta based on false data will certainly result in liability for those agencies and individuals who intentionally ignore the incorrect data.

Please go to <http://snugharbor.net/comments.html> for the final draft of this document, which will be submitted by 2/2/2012 and also posted online.

Respectfully submitted,

In summary, the Delta Plan was determined long ago before there was opportunity for meaningful input by the “stakeholders” who will be most negatively affected by the plan. In any case, at the meetings I attended, and the agency representatives I’ve met with, I have simply asked that the public be provided with verified facts about the Delta, not just the media hype. The Delta Plan might be a good time to start correcting the false data disseminated by DWR and its allies over the last 8 or more years. Taking action to revise the Delta based on false data will certainly result in liability for those agencies and individuals who intentionally ignore the incorrect data.

Please go to <http://snugharbor.net/comments.html> for the final draft of this document

Nicole S. Suard, Esq.

Nicole S. Suard, Managing Member, Snug Harbor Resorts, LLC

Incorporated by reference are all links and attachments.

ATTACHMENT A TO DELTA PLAN COMMENTS

<p>Last update 1/25/2012 DELTA TIMELINE <small>compiled by N. Suard, Snug Harbor Resorts, LLC on Steamboat Slough, Ryer Island draft</small></p> <p>A REVIEW OF DELTA HISTORY 1840 to 2011 using links to ORIGINAL MAPS and DOCUMENTS of the past 160+ YEARS</p>		
	<p>Data has been compiled to preserve Sacramento San Joaquin Delta history, as many Department of Water Resources documents published in the last 8-10 years have provided both false and misleading information regarding Delta history, flood risk, seismic risk, water exports and ecosystem status. Online references provided as noted below and may also be available by year of publication at http://deltaREvision.com Many of the historic Delta maps are found at http://www.deltarevision.com/Delta_maps/Delta_Maps.htm If you don't know about the Sacramento San Joaquin Delta region, here's a short video you might want to see first: http://www.youtube.com/watch?v=hLmpVV3bq9M or go to</p>	<p>Data compiled by N. Suard, Esq. Published January 2012 by Snug Harbor Resorts, LLC a peninsula off Ryer Island by Steamboat Slough in the Sacramento San Joaquin Delta region of Northern California.</p> <p>For Educational uses only. Copyright January 2012</p>
Jan 2012	<p>CURRENT DOCUMENTS IN EIR/EIS COMMENT PERIOD & THE CONSTRUCTION PROJECTS UNDERWAY IN AND AROUND THE DELTA RIGHT NOW</p> <p>(Note: While people talk, the CALFED "Preferred Alternative" of a central conveyance through the Delta, and also portions of the "Dual Conveyance" option are being built...the projects are called different names. Ignore the names and look at the function of the Projects http://deltarevision.com/2012_delta_construction.html)</p>	DESCRIPTION
	<p>http://www.deltacouncil.ca.gov/delta-plan-draft-eir go down the page to get to the important documents...comments accepted through 2/2/2012</p>	New plan for the Delta
	<p>http://www.deltacouncil.ca.gov/sites/default/files/documents/files/Fifth_Staff_Draft_Delta_Plan_080211.pdf</p>	New plan for the Delta incorporated into the EIR by reference so must be read with Delta Plan
	<p>http://www.safca.org/documents/combined20state20submittalsmall.pdf (work being done now) for a map showing the work being done at Egbert Tract per the SAFCA.org website or see http://deltarevision.com/2012%20docs/construction/yolobypass-egberttrace-2012construction.jpg and http://deltarevision.com/2012%20docs/construction/egberttractjan2012improvements-safcaplans.jpg and http://deltarevision.com/2012%20docs/construction/bypass-dec2011.jpg</p>	Yolo Bypass changes, weir modifications, new intakes with fish screens north of Sacramento
	<p>http://www.water.ca.gov/cvfm/docs/2012_CVFPP_FullDocumentLowRes_20111230.pdf work being done now in areas like Boudin Island off Hwy 12...map:</p>	2012 Central Valley Flood Protection Plan, which is different than...
	<p>http://www.water.ca.gov/cvfm/docs/SPFCDescriptiveDocumentNov2010.pdf</p>	State Plan of Flood Control Description Document (2010)

	http://deltarevision.com/2012%20docs/construction/12-calfedupdate12-2011.jpg http://deltarevision.com/2012%20docs/construction/2012-ndip-projects-underway.jpg http://deltarevision.com/2012%20docs/construction/intakes1.jpg http://deltarevision.com/2012%20docs/construction/intakes2.jpg http://deltarevision.com/2012%20docs/construction/fulsom-south-diversion.jpg	<p>Note that most of the “building blocks” of the CALFED 2000 plan have been built or are under constructions...intake on the Sacramento River, revision to Mokelumne River conveyance, modifications to McCormack-Williamson Tract, etc.</p>
	http://bdcpweb.com/Library/DocumentsLandingPage/BDCPPlanDocuments.aspx also incorporated into the Delta Plan if/when decisions are made	<p>Bay Delta Conservation Plan</p>
	http://www.baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/First_A_mendment_BDCP_MOA_Redline_Edits_12-16-11.sflb.ashx	<p>2012 BDCP Memorandum of Agreement done without prior to public input.</p>
	http://www.dot.ca.gov/hq/tpp/californiainterregionalblueprint/images/maps/Priority_Reg-Corridors.pdf http://www.dot.ca.gov/hq/tpp/californiainterregionalblueprint/images/maps/Statewide_Gap_Map.pdf http://www.mtc.ca.gov/planning/2035_plan/FINAL/T2035_Plan-Final.pdf http://www.sacramentoshipchannel.org/ http://www.ice.ucdavis.edu/CTP/Consultation%20Meeting/CTP%20Addendum%20Final%20Draft%204_9_07W_Otrckg.pdf http://www.sacregionblueprint.org/sacregionblueprint/the_project/maps/counties/sacramento/delta/scenariomap.html	<p>California Transportation Planning</p>
	http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/phase2_information.cfm	<p>DRMS Phase 2...posted but not for comment</p>
	http://deltarevision.com/wrong-maps-of-the-delta.html	<p>A smattering of the maps used for the plans for the Delta....you will see that some of these planners do not know the Delta they are revising!</p>

DELTA HISTORY AS SHOWN IN DOCUMENTS , BOOKS, MAPS AND RECORDS OF THE PAST
You might find that true Delta History is different than what DWR and the Delta Plan want you to believe.

YEAR	EVENTS PROVIDED BY THE REFERENCES USED AND MAY BE SUBJECT TO REVISION	DESCRIPTION
1840s	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1840delta.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/1850_mining_districts.jpg	<p>John Sutter settled in Sacramento: He considered the proximity of two mighty rivers the American and Sacramento a significant benefit to the fledgling settlement.</p>
1852	http://www.davidrumsey.com/luna/servlet/view/search?QuickSearchA=QuickSearchA&q=1852+sacramento+iver&sort=Pub_List_No_InitialSort%2CPub_Date%2CPub_List_No%2CSeries_No&search=Search http://www.deltarevision.com/2011/historic-timeline/historic_maps/1852_steamboat-middle_fork_travel.pdf http://www.deltarevision.com/2011/historic-timeline/historic_maps/1850map.jpg http://ccrm.berkeley.edu/resin/pdfs_and_other_docs/background-lit/EarlyReclamationandAbandonmentofDelta.pdf	<p>Short video recounting the first official survey of the Sacramento River by Commander Caldwell in 1852: http://www.youtube.com/watch?v=kSZTiiucq4&feature=mfu_in_order&list=UL or http://snugharbor.net/old_sacramento_river-video.html</p>
1853	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1853_sac_delta.jpg	<p>Explorations</p>

	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1853_blake_geology_map.jpg	Geologist Blake map
1854	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1854_sacramento_river.jpg	Closer look at Rio Vista area
1854	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1854official_map_of_california.jpg	Official county map of California...but the county lines later change (See Solano and Sacramento)
1855	http://www.deltarevision.com/2011/historic-timeline/historic_maps/san_joaquin_river_1860.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/hutchings_sacramento_san_joaquin_steamboat_routes1860s-5.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/1849_sacramento.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/photos/794px-Yosemite_(sidewheeler)_near_Galbraith_dock.jpg http://snugharbor.net/images2010/steamboat_slough_defined.jpg	Sacramento River floods & what the area looks like in sketches
1855	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1855_california_survey.jpg	Public survey but it appears some of the delta area is not surveyed
1862	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1860_steamboat_travel_steamboat_slough.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/ferry_landing-grand.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/1850s_steamboat_races4.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/1850s_steamboat_races1.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/1856_river_landings.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/hutchings_california_magazine.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/1867_california_steam_navigation_co_route_up_steamboat_slough.jpg	Quote about Steamboat Slough from Hutchings Sketch of farm on Grand Island Description of life on a steamboat Travel times Mr. Hutchings California Magazine
1860's	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1860s_stagecoach_travel_routes.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/1865_steamboat_sacramento_routes.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/1865_rr_map.jpg	Overland routes. RR travel A look at the seaports. By 1868...American River Rechannelized: In an effort to create faster flows that might scour out mining debris, Sacramento officials straightened the last two miles of the American River. When the project was completed in 1868, the American joined the Sacramento River about a mile upstream of its old location.
1860s	http://snugharbor.net/images-historic/delta_banks1860s.jpg	May be miners slough or steamboat/sutter? Shows silting

1866	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1866land_grants.jpg	Map of land grants
1867	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1867topo.jpg	
1869	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1865delta.jpg	Lands of the Tidelands Reclamation Company
1871	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1871_solano_county.jpg	Notice sac river
1871	http://www.deltarevision.com/1848-1989_docs/1871salmon_steamboat_slough_hutching.pdf	Detailed description of how many salmon are found at the confluence of Steamboat Slough, Sacramento River and Cache Slough area
1873	http://www.davidrumsey.com/luna/servlet/detail/RUMSEY~8~1~1635~180047:Map-Of-The-San-Joaquin-Sacramento-	Often used map. Shows the “overflowed lands” to be irrigated. Look at map key. Shows existing channels
1873	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1873_sacramento_san_Joaquin_tulare_map.jpg	Often used map at drv. Land sold to persons to farm and improve
1875	http://www.deltarevision.com/1848-1989_docs/Minis_1875_1877.pdf	\$2 per acre to be reclaimed
1876	http://snugharbor.net/images-historic/1875shd_map.jpg	Example of survey and deed
1876	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1876_norcal_rr.jpg	Railroads, ownership and counties. Note delta waterways
1880		Illustrated Wasp Sketch as shown at Sacramento Historic Society website revised per 2002 copyright notice-original sketch was reflective of political push to get mining debris out of Steamboat Slough and “Old River” Sacramento Hall Plan for Flood Control of the Sacramento and Delta region
1886	http://www.davidrumsey.com/luna/servlet/detail/RUMSEY~8~1~207679~3003423:California-State-Engineering-Depart?sort=Pub_List_No_InitialSort%2CPub_Date%2CPub_List_No%2Cseries_No&qvq=q:sacramento%2Bsan%2Bjoaquin%2Bdelta;sort:Pub_List_No_InitialSort%2CPub_Date%2CPub_List_No%2Cseries_No;lc:RUMSEY~8~1&mi=3&trs=4 http://snugharbor.net/images2010/steamboat_slough_old_shipwrecks.pdf http://snugharbor.net/images2011/deltastuff/1887-delta.jpg Section of very large Hall map , showing the area we call the “legal Delta” today	Hydraulic mining fills up the ravines and delta main channels: Sac Bee graphic, other info 1880 First Comprehensive Flood Control Plan: In response to the 1878 flood, State Engineer William Hammond Hall developed an integrated, comprehensive flood control plan for the Sacramento Valley. The plan subsequently came to include a system of levees, weirs and bypass channels to protect existing population centers.
1892	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1892_california.jpg	State trade board: counties and roads/rr
1894	http://www.deltarevision.com/1848-1989_docs/1894SteamboatSloughChannel.pdf	About steamboat slough and how its silted in
1985	http://deltarevision.com/1848-1989_docs/sacramento_shipwrecks1.pdf	Dwr shipwrecks summary

1895	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1895_randmcnally_saccountyoff.jpg	Solano vs sacramento
1895	http://www.deltarevision.com/2011/historic-timeline/historic_maps/old_norcal_bikemap.jpg	Biking trails!
1896	http://www.deltarevision.com/2011/historic-timeline/historic_maps/ryer1896.jpg	Ryer and Longpoint
	http://www.spk.usace.army.mil/projects/civil/Delta/Index.html http://www.spk.usace.army.mil/projects/civil/Delta/Docs/Plate2.pdf	USACE description and links
1901		State population is 1.6 million. The Federal Reclamation Act is passed, passed on the Hall Plan from 1886 and influenced by the Marshall plan
1906	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1908delta_survey_cover.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/1908_map_chart.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/1908_san_joaquin_survey_sample.jpg	Delta survey shows the island names as they are today & levees and subsidence of that time. Also show modern Delta map that will be base map for Delta Videos
1906		SF earthquake...no levee fails
1908	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1908_ca_board_of_trade_ship_routes.jpg http://www.deltarevision.com/1848-1989_docs/steamboat_slough_old.pdf	Map shows shipping channels, use of Steamboat Slough
1911		State Reclamation Board is formed
1912	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1912ca_atlas.jpg	Counties seem set. Steamboat main channel
1913	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1913Ryer-sh.jpg	Shows ferry landing and other landings
1913	http://deltarevision.com/1848-1989_docs/1913_delta_floods_summary.pdf	Summary of delta flooding
1914		Surface Water Rights Law is revised
1917		Congress authorizes Sacramento Flood Control System: After a series of violent floods between 1902 and 1909, the Comprehensive flood control project envisioned by Hall gained federal financial authorization in 1917.
1923	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1921_steamboat_slough_navigation.JPG	Report to congress to improve delta navigation
1925	http://deltarevision.com/1848-1989_docs/1925_report_to_congress_Delta_river_navigation.pdf.pdf	First section of Delta floods timeline-focus
1927		St. Engineer Hayatt begins a study of the Central Valley Project (CVP) influenced by the Marshall Plan
1927	http://snugharbor.net/images-maps/1927delta.jpg	Delta king and Queen route
1927	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1927_dwr_bullitin.jpg	State planning but it becomes a federal project

1929	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1929_delta.jpg	Soundings and planning
1929		Market crash & the start of the Great Depression nationwide
1930	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1930_CalWaterPlan.pdf	Copy of the water plan
1930	http://www.deltarevision.com/2011/historic-timeline/historic_maps/delta_timelines.pdf	Flood timeline look at period before 1930 Delta Salinity investigation begins. Measure is 1 ppt, which is a very low level of brackish water)
1933	http://deltarevision.com/1990-1999_docs/1933SanJoaquin.jpg	CA voters approve CVP; Federal Authorization of Central Valley Project & Dredging of Stockton Deep Water Channel (can bring in salt water at low fresh water flows)
1935	http://deltarevision.com/images/historic/1935soils.jpg	Soil survey and navigation
1935		President Roosevelt releases emergency funds to CVP to build it, creating jobs for California USBR is the builder
1936	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1936_delta_uplands.jpg	North Delta is uplands
1937	http://www.lhc.ca.gov/studies/activestudies/watergovernance/MilliganJun09.pdf http://www.spk.usace.army.mil/organizations/cespk-co/regulatory/program.html http://www.spk.usace.army.mil/organizations/cespk-co/regulatory/section10text.html http://www.spk.usace.army.mil/organizations/cespk-co/regulatory/ca_waterways.html http://www.usbr.gov/history/cvpintro.html	Quote about 1937 Rivers and harbors act-page 6 Nations most valuable resource More on the codes Rivers and harbors of California Usbr history
	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1940sacriver_flood_farmers.jpg	Photo of floods
1940s	http://baydeltaoffice.water.ca.gov/DeltaAtlas/03-Waterways.pdf	Delta atlas from dwr docs
1940		Export begins via Contra Costa Canal
	http://www.deltarevision.com/california_delta_1930s_to_1980s.htm	Documents from 1930-1970s
1941	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1941_california_oil_and_gas_map_ad.jpg http://www.deltarevision.com/1848-1989_docs/Soil%20Survey%201936%20Issued%2007-1941.pdf	Construction, pipes, dams, etc Soil survey report
1944	http://www.safca.org/history.html	Shasta Dam and Reservoir construction also Folsom
1945	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1945_pge_water_resources.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/1945_swp_survey_plans.jpg	Dams for power and flood control and recreation Central canal shown
1948		Contra Costa Canal system completed
1949	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1949_central_valley_project_cover.jpg	Central canal proposed...same as the “fresh water

	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1951_dwr_planning.pdf huge doc to open http://www.deltarevision.com/1848-1989_docs/sac_river_deep_water_ship_channel_project_1949_07.pdf	corridor” and “central conveyance” and other current planning names
1949	http://deltarevision.com/1848-1989_docs/dwr_1949_port_channel_hydro_analysis.pdf http://deltarevision.com/1848-1989_docs/sac_river_deep_water_ship_channel_project_1949_07.pdf	Analyzing sac ship channel
1951	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1951_dwr_planning.pdf	Delta-Mendota Canal and Delta Cross Channel initial units of CVP completed
1952		Delta-Mendota Canal completed – 4,6000 cfs from Tracy Pumping Plant delivers 3,210 cfs to Mendota canal
1952	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1952_usgs.JPG	Topo of the delta waterways
1954		
1955	http://www.deltarevision.com/1848-1989_docs/corps_oma_manual_for_fremont_weir_to_sac_weir.pdf	Yolo bypass weirs
1956	http://deltarevision.com/images/historic/reclaimed_islands.jpg	
1959	http://deltarevision.com/1848-1989_docs/Pacific%20Historian1959_delta_history.pdf	Dr. John Thompson on the Delta...note his map of Sac river
1959	http://www.water.ca.gov/pubs/dwrnews/dwr_news_people_fall_2010/news-people-fall2010.pdf 2010 summary included	Burns-Porter Act and Delta Protection Act
1960	http://www.water.ca.gov/swp/history.cfm	Voters approve State Water Project financing, launching the State Water Project (SWP) & Sacramento River Flood Control Project completed. See 110 year flood timeline
1961	http://www.water.ca.gov/swpao/docs/wsc/ACFC_O_C.pdf	Zone 7 water rights
1960	http://www.deltarevision.com/2011/historic-timeline/historic_maps/ca_water_development_map.jpg	Modern map showing history of development of water projects
1963	http://www.deltarevision.com/1848-1989_docs/Physical%20environment%20and%20agriculture%20of%20sacramento.pdf	Soil survey of Delta
1963		Sacramento Deep Water Channel construction
1965	http://www.deltarevision.com/1848-1989_docs/1965-66_canal_proposal.pdf	Central canal proposal and Interagency Delta Committee report recommends Peripheral Canal
30-66	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1930-1966_flooding-dwr.jpg	DWR flood map and Flood timeline-second section
1966	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1966fish_studies.jpg	Fish studies ongoing
1967		Adoption of ag salinity standards of Water Right 1275-

		water rights for the SWP Oroville Dam & Fish Hatchery and Delta Pumping Plant & fish facility
1968		Adoption of Resolution 68-17, a water quality policy for the Delta D-1379?
1968	http://snugharbor.net/images2010/webcam/steamboat_slough_1968.jpg	Delta boating on ss
1971	http://www.waterrights.ca.gov/hearings/decisions/WRD1379.PDF	Delta Water Rights D-1379: conditions o operation of CVP and SWP to protect fish & wildlife
1972	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1973_delta_boating.pdf http://www.deltarevision.com/2011/historic-timeline/historic_maps/1972_delta_soils.JPG	Delta recreation Delta soils
1973		Adoption of Resolution 73-16 re State water quality control for the Bay/Delta. California Aqueduct completed to Southern California & Way Bill-Delta Levee maintenance
1973	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1973_ryer_island_soils.jpg	Soil surveys and planning for dredging
1974		North Delta Water Agency forms to represent North Delta land owners, which result in the NDWA contract & water quality and flow protections. 1980 contract
1975	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1975_central_valley_project_water_distribution.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/1975_central_valley_project_water_distribution.jpg http://www.deltarevision.com/2011/videos/waterflow/1976.jpg	Good maps showing how/where water is delivered
	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1975_delta-flooding-dwr_Page_3.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/1975_delta-flooding-dwr_Page_2.jpg http://deltarevision.com/maps/islands_floods_levees/1975_delta-floods-dwr.pdf http://deltarevision.com/maps_historic/1975_controlled_flood_islands_of_the_delta.jpg	Controlled flooding in 1975 DWR issue plan for Delta Levee Improvements and Brian Atwater and crew begin Delta map studies
1975	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1_delta_timeline_dwr.pdf	DWR review of the Delta population and recreation facilities
1977	http://snugharbor.net/images-historic/1977SNUG_SOIL_SURVEY.jpg http://www.deltarevision.com/images/pdfs/1977SacDelta_report.pdf	Sample of a soil survey of the delta Water policy history paper
1977	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1977_delta_monitoring_stations.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/diversions.gif http://www.deltarevision.com/2011/historic-timeline/historic_maps/maxsalt_21to43.gif http://deltarevision.com/1848-1989_docs/Pacific%20Historian1959_delta_history.pdf	Monitoring water quality
1977	http://www.deltarevision.com/1848-1989_docs/1965-66_canal_proposal%20(2).pdf http://www.deltarevision.com/1848-1989_docs/Turrentine-Jackson-1977.pdf	New approach to p canal Review of water policy

1978	http://www.waterrights.ca.gov/hearings/decisions/WRD1485.PDF	SWRCB issues Water Rights decision: D-1485. Adoption of 1978 WQCP -Delta & Suisun Marsh
1980	http://www.water.ca.gov/swp/milestones.cfm	Senate Bill 200 specifies Peripheral Cana
1980		State reviews old deeds and land grants in the Delta...notes if mineral rights were reserved...or not, because state is leasing out rights for natural gas wells on state properties
1981	http://northdw.com/Documents/NDWA%20Contract.pdf http://deltarevision.com/1848-1989_docs/1981_NDWA%20Contract.pdf	Ndwa contract to assure water quality
1981	http://ryerisland.com/images/maps/google/usgs_longpoint.jpg	Other ryer named
1982	http://www.water.ca.gov/swp/milestones.cfm#1980	Voters overwhelmingly defeat Proposition 9, the Peripheral Canal
1982	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1982_atwater_survey_of_the_delta_isleton-sh.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/1982_atwater_survey_of_the_delta_key.jpg	Atwater maps compare levee locations in 1852 to current. Bond act turned down.
1983		Record rain year with substantial Delta flooding-some Delta residents feel flooding was unnecessary and an intentional "punishment" for opposition to the peripheral canal
1984	http://www.deltarevision.com/1848-1989_docs/1982_dwr_delta_flood_history.pdf	1984 review of floods
1985	http://aquadoc.typepad.com/waterwored/2009/10/video-presentation-lloyd-g-carter-on-californias-water-mess.html	Selenium is recognized as a toxin runoff from areas of Westside Water Agency, lower Central Valley
1985	http://www.snugharbor.net/images-historic/Pacific%20Historian1959_delta_history.pdf	Dr. John Thompson, often quoted in DWR docs, did summary for Pacific Historian
1986		Coordinated Operating Agreement between State and feds to determine the respective water supplies of the CVP and SWP while allowing for a negotiated sharing of Delta excess outflows and the satisfaction of in-basin obligations between the projects
1986		SWP 4-pumps agreement with DWR and FWS for offsetting adverse fishery impacts by diversions
1986		Record waterfowl-Delta flooding-see time line. CVP/SWP Coordinated Operation Agreement & DWR-DFG fishery mitigation agreement

1986	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1986_california_earthquakes-locations.jpg	Seismic study of California
1986	http://deltarevision.com/1848-1989_docs/1986-tyler_island_flood.pdf	100 year flood in the Delta. Look at who flooded... Record Flood: The February 1986 storm dumps 10 inches of rain on Sacramento in 11 days. The American River dumps more water into Folsom than it is designed to handle. After 2 days of releases at the design level, (115,000 cubic feet per second (cfs)), officials boost releases to 134,000 cfs. Folsom performance downgraded to about a 60-year storm.
1988		North Bay Aqueduct and Suisun Marsh salinity control gates & Senate Bill 34 to rebuild Delta Levees: Delta Food Protection Act of 1988 South Delta Control barriers-temp
	http://www.deltarevision.com/2011/historic-timeline/historic_maps/1990s_doc_studies.jpg	Uplands and lowlands
1988	http://www.deltarevision.com/maps/Delta_historic_maps/1980s_delta_wetlands_storage.jpg	Delta wetlands or ids In-Delta water storage -select Delta islands proposed by the corporate land owners of those islands
	http://www.deltarevision.com/maps/salinity-toxins/maxsalt_44to90.gif http://www.deltarevision.com/maps/salinity-toxins/maxsalt_21to43.gif	Wq measured as 1000 parts chloride per million parts of water
1990	http://www.deltarevision.com/maps/salinity-toxins/1990salt.jpg	State population is 30 million. Improvements to Delta levees begin to be implemented regionally. Repot map shows how water flows in the Delta
1991	http://www.deltarevision.com/maps/salinity-toxins/1991_usgs.jpg http://www.deltarevision.com/maps/salinity-toxins/delta_salinity.jpg	USGS hydraulic region for Sacramento included part of the Delta
1991		Four new pumps added to Banks Delta Pumping Plant. Adoption of 1991 WQCP for Salinity for Bay & Delta. EPA disapproval
1992		D 1630-interim water rights terms and conditions for CVP and SWP: Delta Protection act of 1992 & Federal CVP Improvement Act (CVPIA)(PL 102-575) & Governor's Water Policy-Bay-Delta Oversight Council
1992		Mandated changes to the CVP for the protection, restoration and enhancement of fish and wildlife
1993		Governor requests SWRCB to cease work on D-1630 and develop long-term standards. USFWS issues biological opinion for Delta Smelt under Endangered Species Act
1993		FWS BO for Delta Smelt and Sacramento Spittail

1994		NOAA issues biologic opinion for winter-run Chinook salmon. Bay-Delta Accord, Delta WQ standards & CALFED Bay-Delta Program funding
1994	http://www.water.ca.gov/environmentalservices/docs/mntry_plus/FEIR.pdf page 124	Summary of Monterey Agreement-SWP transfers and allocation of water rights
1995	http://calwater.ca.gov/content/Documents/library/SFBayDeltaAgreement.pdf http://www.water.ca.gov/swpao/docs/bulletin/95/view/figures/figi-1.htm http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/wq_contr ol_plans/1995wqcp/docs/1995wqcpb.pdf	SWRCB issues water quality control plan for bay & Delta (1995 Bay-Delta Plan); adopts Water Right Order 95-6 to amend permits for CVP & SWP
1995		Monterey Agreement
1990s	http://www.deltarevision.com/1990-1999_docs/delta_wetlands_project1995.jpg	Waterflow timeline showing exports. Waterflow timeline showing fish decline.
1995	http://www.water.ca.gov/iep/newsletters/1995/IEPNewsletterSummer1995.pdf	page 10 usgs page 12
1995	http://ryerisland.com/images/gov-pdfs/seismic/1995soil_sample_map.jpg	Other ryer island soils samples: Gas and Oil explorations in the Suisun Marsh area
1996	http://www.deltarevision.com/1990-1999_docs/1996-CALFED_fish_species_report.pdf	Fish problems
1997		High precipitation winter results in flooding of some areas of the Delta: See flood time line for 110 years Record Flood: The fifth record flood in 46 years occurs over the New Year's holiday. Unprecedented flows from rain and melted snow surge into the Feather and the San Joaquin. Sacramento is spared when the fury of the storm hits 40 miles north in the Feather River. Levee failures flood Olivehurst, Arboga, Wilton, Manteca, and Modesto...with some controlled flooding of Delta islands and waterways
1997	http://www.water.ca.gov/iep/newsletters/1998/winter/Red%20Tide%20in%20Berkeley%20Marina%20Raises%20Concern%20for%20Toxic%20Blooms%20in%20Central%20Bay.pdf	calfed influenced 1997
1998	http://www.deltarevision.com/1990-1999_docs/NHI-Packard_delta_study1998.pdf http://www.deltarevision.com/1990-1999_docs/1998Diversion_Effects_on_Fish_2.pdf	Report by Packard Foundation & National Heritage Institute Recommends a through-Delta canal as the preferred alternative, utilizing Mokelumne River & DCC reoperation, with barriers. Liberty Island flooded, to be used for Smelt studies.
1998	http://www.ppic.org/main/about.asp	An organization called PPIC begins publishing studies funded by several major nonprofit organizations which promote the diversion of more Delta water

1998	http://www.deltarevision.com/1990-1999_docs/1998fed-reg.pdf http://www.deltarevision.com/maps/restoration_plans_experiments/2006eco-crecent_millde_river_conveyance.jpg	Notice of meeting referring to preferred alternative
1998	http://www.deltarevision.com/1990-1999_docs/1998-calfed-levee-history.pdf	Note the number of islands used for studies and mapping up until this time
1998	http://www.spk.usace.army.mil/projects/civil/folsom/index.html	Expansion of Folsom Dam outlets to divert water away from Sacramento River system in the Delta go to bottom of page
1999	http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/decision_1641/index.shtml http://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/decisions/d1600_d1649/wrd1641.pdf http://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/decisions/d1600_d1649/wrd1641_1999dec29.pdf http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/decision_1641/exhibits/exhibitlist.pdf	SWRCB adopts Decision 1641 to implement objectives of 1995 WQCP (X2 standards Feb thru June for habitat) Measure used to be 1 ppt. Docs refer to 2 ppt, in effect changing wq standards substantially!
2000	http://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/decisions/d1600_d1649/wrd1641_1999dec29.pdf	SWRCB revised water right decision 1641 to provide for operations of the CVP and SWP to protect Delta water quality
2000	http://calwater.ca.gov/content/Documents/ROD.pdf http://www.deltarevision.com/2011/calfed/Recent%20Delta%20History%20and%20the%20OCALFED%20Record%20of%20Decision.pdf http://calwater.ca.gov/content/Documents/new_final_framework.pdf	Very important to review to understand the actions taken 2000 to 2011: CALFED Record of Decision Video updating status in 2010
2000	http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/CALFED_ROD_Levee_Plan.pdf http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/CALFED_ROD_Levee_Plan.pdf	Flood timeline-third section & whole timeline focus CALFED ROD map
2000	http://www.calwater.ca.gov/content/Documents/library/July2000_EIS_EIR/301/301_chapter2.pdf http://calwater.ca.gov/calfed/library/Archive_ROD.html	CALFED Record of Decision: Through-Delta canal with restoration for mitigation plan adopted CA Dept Health adopts plan to require most ground wells to chlorinate to avoid bacteria, even if no bacteria exists in the water system. Requires even small public water systems, like a restaurant using a well and private campgrounds to have a Certified Water Operator & to report water use.
2000	http://www.deltarevision.com/maps/restoration_plans_experiments/canal_building_blocks_2012.jpg http://calwater.ca.gov/content/Documents/library/plan_of_action.pdf	Planning maps for central canal Recirculation study Calfed building blocks

	http://www.deltarevision.com/maps/conveyance-canals/thru_delta_conveyence.jpg http://deltarevision.com/2000_docs/Cal_Fed_report_FINAL_2000.pdf	Controlled flooding using McCormac and Statten
2000	http://pubs.usgs.gov/circ/circ1182/pdf/11Delta.pdf http://www.deltarevision.com/2000_docs/2000_breach_study_using_1992_flow.txt	Usgs “sinking heart of the state” notes subsidence slowing down
2000	http://www.cdph.ca.gov/programs/Pages/DWP.aspx http://modeling.water.ca.gov/hydro/model/calsim-doc/index.html http://modeling.water.ca.gov/hydro/model/ http://modeling.water.ca.gov/delta/studies/validation2000/map.html	CA drinking water program expands DWR changes how water flow is calculated and reported, which creates conflicts with how other organizations, like USBR and USACE calculate flow.
2000	http://www.water.ca.gov/iep/newsletters/2000/2000winter.pdf	
2000	http://sfestuary.org/userfiles/2000_EstuaryIntro.pdf	Link from ABAG website has good summary of the estuary, including the Delta
2001	http://www.deltarevision.com/Delta_maps/Delta_Maps.htm	Water used to produce energy map of usa and many, many other maps by year!
2001	http://www.deltarevision.com/2011/historic-timeline/historic_maps/2001_oil_gas_delta.jpg http://www.deltarevision.com/maps/2001delta_wetlands_project.jpg	Minerals map of California...gas and oil in Delta region Delta wetlands project
2001		CVPIA ROD implemented provisions of CVPIA including allocating 800,000 acre-feet of CVP yield for environmental purposes
2001	http://www.deltarevision.com/2001_docs/delta_channel_depletions_salinity.jpg http://www.deltarevision.com/2001_docs/2001CALFED_scrutinize_cross_channel.pdf http://www.deltarevision.com/2001_docs/2001delta_meeting.pdf http://www.deltarevision.com/2001_docs/DPC_SUMMARY_OIF_PROJECTS_.pdf	Delta Cross Channel gates “reoperation” for fish protection and water flow planning
2001	http://www.deltarevision.com/2001_docs/ChinookSalmonFryOutmigrantPilotStudy.pdf http://www.deltarevision.com/maps/fish/usfw_fish_monitoring_map.jpg	Salmon studies
2001	http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/docs/060611wrkshp/usfws.pdf	As more water is diverted, salmon populations decline. NMFS BO for spring-run Chinook salmon and steelhead established criteria for operations to protect the runs
2002	http://www.deltarevision.com/2011videos/waterflow/sacramentoriverflowdiagram.jpg http://www.deltarevision.com/2011videos/waterflow/methology-flow-2001.jpg http://www.deltarevision.com/Delta_maps/maps/water_flow_use/banks_8500_mediation.jpg http://www.deltarevision.com/Delta_maps/maps/water_flow_use/usbr_flow_map.jpg	See links to original documents, which show on the maps linked to the left. Computer modeling for flow, floods, particle tracking, levee breach effects, water quality, etc In-Delta storage studies (Surface Storage Investigations) Increased water exports

2003	http://www.water.ca.gov/environmentalservices/docs/mntry_plus/Monterey%20Plus-ExhC_Statement%20of%20Overriding%20Considerations.pdf http://www.water.ca.gov/environmentalservices/docs/mntry_plus/FEIR.pdf	<p>Summary of "Monterey Plus" agreement-page 4-5</p> <p>FEIR-page 126 transfers KFE property</p>
2003		<p>Group of Delta area businesses and residents petitions the state travel commission to recognize the Delta as its own tourist region. At Sacramento hearing, no commissioner bothers to show up to hear the requests of over 100 Delta-area businesses and local representatives of the Delta towns. (check date-may have been 2002 hearing)</p>
2003		<p>Gov Gray Davis recall...Gov AS voted in</p>
2003		<p>AS promotion of a "hydrogen highway" in California</p>
2003		<p>DOI provides over 3.4 Billion for Central Valley and Delta projects and studie</p>
2003	http://www.deltarevision.com/maps/in-Delta_storage/statten_repairs1.jpg http://www.deltarevision.com/maps/in-Delta_storage/2004in-delta_storage.jpg http://www.deltarevision.com/jt.htm	<p>Land ownership Statten use In-Delta storage proposals-Bacon Island, Webb Tract, etc</p>
2003	http://www.deltarevision.com/computer_modeling_the_delta.html http://www.deltarevision.com/2011videos/waterflow/1995_delta_in-out_flows.jpg http://calwater.ca.gov/content/Documents/Amended_and_Restated_MOU_9-03.pdf	<p>Transition to computer modeling for effects analysis: In-Delta surface storage studies conclude field study needed (2/2004) Yolo Bypass planning and Suisun Marsh restoration possibly as mitigation</p>
2003	http://deltarevision.com/COMMENTS/2003-over-3-billion-federal-funds.jpg	<p>Over \$3 billion for California Delta comprehensive basin study provided by the federal government!</p>
2003	http://www.water.ca.gov/deltainit/	<p>Delta maps are removed from public access from the Library of Congress in Washington D.C. (it is later learned the official survey maps were being digitized, or scanned, to eventually be published online.</p>
2004	http://www.deltarevision.com/2004_docs/wptf20040408_deltapack.pdf http://www.deltarevision.com/timeline.htm http://www.deltarevision.com/2011/Bacon_Island_Jones_Tract_field_studies.pdf http://www.waterplan.water.ca.gov/docs/meeting_materials/analytical/05.24.04/CALSIM%20WTT.pdf	<p>Delta pact call to action on calfed "Stakeholders" meet and agree to modification of 2000 ROD plan. Surface Storage field study conducted- Jones Tract Levee failure June 1 or June 3. Independent Science board for Delta Improvement Plan (DIP) formed. Plan later splits into North Delta (NDIP) and South Delta (SDIP) project and called "restoration projects" even though they are conveyance per CALFED.</p>
2004	http://modeling.water.ca.gov/delta/reports/annrpt/2005/2005Ch3.pdf http://snugharbor.net/images2010/misc/dcc-jt-6-1-2004.pdf	<p>Computer modeling Jones Tract incident and timing.</p>

	http://www.waterplan.water.ca.gov/docs/meeting_materials/analytical/05.24.04/CALSIM_%20WTT.pdf http://baydeltaoffice.water.ca.gov/modeling/hydrology/Hydrogroup.html http://baydeltaoffice.water.ca.gov/modeling/hydrology/HDG_04/HDG%20CalWater%20LPLewis%20Oct08-04.pdf http://baydeltaoffice.water.ca.gov/modeling/hydrology/HDG_04/HDG%20Sac%20Hydro%20Proposal%2016Nov04.pdf http://baydeltaoffice.water.ca.gov/modeling/deltamodeling/presentations/200301_CALFEDSci.pdf http://baydeltaoffice.water.ca.gov/modeling/hydrology/HDG_04/DSM2_ModelDependencies.pdf http://baydeltaoffice.water.ca.gov/modeling/hydrology/HDG_04/HDG%20Hydrology%20Development%20for%20the%20Sacramento%20Valley%20ADraper%20Oct08-04.pdf http://baydeltaoffice.water.ca.gov/modeling/hydrology/HDG_04/HDG%20Sac%20Hydro%20Proposal%2016Nov04.pdf	Slide 22-“gaming” water transfers and computer modeling
2004	http://www.water.ca.gov/floodmgmt/dsmo/sab/ndp/ http://www.deltarevision.com/2004_docs/2005_motive_for_delta_water_grab.pdf http://www.water.ca.gov/frankstract/docs/Delta_Conveyance_Summary_Report_121007.pdf	Ndip
2004	http://www.deltarevision.com/Delta_maps/In_Delta_water_storage.htm http://www.deltarevision.com/2004_docs/JT/jones-bacon.jpg http://www.deltarevision.com/2011/2011videos/2004_Mount_Twiss_Levee_Report_dec.pdf or go to http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/Mount_Twiss_Levee_Report.pdf shows how this report influenced subsequent decisions...follow how to get to it http://www.deltarevision.com/2004_docs/ISB_packet_public_meeting_092104_v2.pdf http://www.deltarevision.com/2004_docs.htm http://www.deltarevision.com/2004_docs/2004_levee_facts_finding_team.pdf	Mount & Twiss are assigned as the Delta flood history persons ISB for CALFED accepts Mount & Twiss paper without final review Mount & Twiss white paper published with false flood history for the Delta
2004		B&M Gates Foundation funds UC Davis Rice studies, promoting use of Delta lands to grow rice. Google website/foundation promotes growing tules to reduce carbon footprint.
2004	http://www.youtube.com/watch?v=274M7dbotEk&feature=mfu_in_order&list=UL	Video about Bacon Island planned use for in-delta storage, after the “field test” of Jones Tract in 2004
2005	http://ryerisland.com/images/smalls/2004_flooded_islands-wrong_islands_map.jpg	Classic example of how wrong some of the planning documents-maps-can be...shows the lack of quality, oversight and independent review of DWR’s “best available science”.
2005	http://www.deltarevision.com/2011videos/waterflow/calsim-modeling_schem.jpg http://www.deltarevision.com/2011videos/waterflow/sacramentoriverflowdiagram.jpg how the water physically flows.	“Stakeholders” begin implementation actions per the 2004 “Napa Alternative and “Monterey Alternative” Freeport project plans to divert water away north of the Delta

2005	http://baydeltaoffice.water.ca.gov/ndelta/summaryreport/documents/FloodedIslandFeasibilityStudyBaselineReport.pdf http://www.water.ca.gov/frankstract/docs/(4)Flooded%20Islands%20Baseline%20Report.pdf page 24 of 320 http://www.deltarevision.com/wrong-maps-of-the-delta.html http://www.ryerisland.com/wrong_maps_of_ryer_island.htm http://snugharbor.net/delta_confusions.html	Example of wrong Delta names Google confuses Delta Island names: wrong Delta maps page
2005	http://www.ccwater.com/files/DeltaRegion.pdf page 11 249	
2005	http://baydeltaoffice.water.ca.gov/sdb/sdip/index_sdip.cfm http://www.water.ca.gov/floodmgmt/dsmo/docs/white_paper.pdf 2000 paper listing conveyance improvements proposed	South Delta Improvements (SDIP) North Delta Improvements (NDIP)
2006	http://deltarevision.com/Delta_maps/Floods-Islands-Levees.htm	Review of delta levee history
2006	http://www.youtube.com/watch?v=QXhZZwtSrLk&noredirect=1	UC Berkeley : water speakers & studies hosts summer program regarding "Reinvisioning" the Delta. Maps from URS use the false flood data. UC Davis conducts computer effects modeling
2006	http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/Comparison_of_Major_Levee_Breaks_in_Delta.pdf	Jones Tract 2004 levee failure not included...because it was a field study?
2006	http://www.deltarevision.com/maps/salinity-toxins/delta_islands.JPG http://www.waterboards.ca.gov/water_issues/programs/tmdl/records/state_board/2006/ref765.pdf	Monitoring stations
2006	http://baydeltaoffice.water.ca.gov/DeltaAtlas/06-FloodControl.pdf	From 2011 online-delta atlas section-flood history
2006	http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/epa/r5_06_303d_reqtmdls.pdf http://www.waterboards.ca.gov/water_issues/programs/tmdl/records/state_board/2006/ref625.pdf http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/swrcb/r5_final303dlist.pdf http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/swrcb/staffreport/v3r5_final.pdf http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/wq_control_plans/2006wqcp/docs/rev2006wqcp.pdf	delta pages 5-8
	http://baydeltaoffice.water.ca.gov/modeling/deltamodeling/AR2007/2007_Annual_Report	Salinity modeling

	t_Final.pdf	
2007	http://baydeltaoffice.water.ca.gov/sdb/tbp/deltaoverview/delta_overview.pdf http://www.deltavision.ca.gov/BlueRibbonTaskForce/Sept2007/Handouts/Item_3.pdf	Example of wrong waterways, islands, but good example of island flood history Delta Vision group summary
2007	http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/DRMS_Presentation-DWR_Public_Mtg-062607.pdf	.DRMS presentation
2007	http://socialwaterdialogue.org/calendar/DeltaMaps-Actions_Bourne_6-27-07.pdf	Delta Vision discussion maps
2007	http://bios.dfg.ca.gov/ http://www.dot.ca.gov/hq/env/bio/files/ppt_mdtmtg4.pdf http://www.prbo.org/calpif/pdfs/riparian_v-2.pdf	3 year closure of salmon fishing in the Delta starts at the same time as the acoustic tagged fish studies are conducted Delta aquatic ecosystem shows dramatic decline while water exports continue to increase
2007	See 2008 Phase 1 final (revised several times to a new “final” Dec 2009) http://www.science.calwater.ca.gov/drms/drms_irp.html http://www.science.calwater.ca.gov/pdf/drms/DRMS_Risk_Report_section_07.pdf wrong data regarding Ryer Island flooding; wrong data for several other islands-inflates flood history by counting floods before levees were improved and by counting floods of islands used for “controlled flooding” meaning they MEANT to flood the island. Upper & Lower Jones Tract 2004 listed, even though it was part of the “field studies” for the In-Delta Storage planning	DRMS study for DWR by USR attempts to revise Delta history by publishing false and misleading data. Intake facility approved by Freeport-construction begins (EBMUD). Intake facility on Victoria Canal (CCWD) planned. Levee improvements begin along the pathways of the “central canal” or CALFED preferred alternative.
2007	http://www.ccwater.com/aip.asp http://snugharbor.net/images2011/deltastuff/conveyance-2011-update.jpg http://www.waterrights.ca.gov/application/PetNot/docs/20245_aip_ccwd_petition.pdf http://www.spk.usace.army.mil/pub/outgoing/co/reg/pn/200500537.pdf https://www.communicationsmgr.com/projects/losvaqueros/docs/2_background.pdf http://deltawatersupplyproject.com/ http://www.reedconstructiondata.com/building-types/water-treatment/california/projects/1000821853/ http://www.ccwater.com/	CCWD new water intake at Victoria Canal is constructed to provide fresh water that will no longer be available at the original CCWD intakes closer to Sherman Island and Suisun Bay area. Intake at Empire Tract planned-referred to as a Stockton water project
2007	http://www.water.ca.gov/environmentalservices/docs/mntry_plus/comments/Contra%20Costa%20Water%20Dist.pdf	Monterey Amendment reference
2007	http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/phase1_information.cfm published 2008 http://www.deltarevision.com/Delta_maps/Floods-Islands-Levees.htm one of the challengers to DRMS flood history http://www.ryerisland.com/images/floods/delta_floods_final.pdf http://www.deltarevision.com/deltafloortimeline.html	DRMS Phase 1 report public copy is released and is highly challenged by many. Some of the false information is corrected by December 2009. August-Delta Vision meetings in the Delta is the first time Delta area residents are told of the planned revisions to the Delta. Delta Vision documents use the false data found in the DRMS Phase 1 report.

		showing at DWR website would lead to confusions, like the Delta Plan of 2012 quoting 2008 DRMS false data.
2008	http://www.science.calwater.ca.gov/pdf/drms/IRP_DRMS_Review_main_plus_appendices.pdf http://www.deltavision.ca.gov/BlueRibbonTaskForce/Sept2007/Handouts/Item_9_Handout_1.pdf http://www.science.calwater.ca.gov/pdf/drms/DRMS_memo_TFFin12_092107.pdf http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/IRP_DRMS_Review-main_plus_appendices.pdf http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/Risk_Report_Section_0_Final.pdf	The October 2008 “Independent review” that highly criticizes the DRMS Phase 1 data does not stop the DRMS Phase 1 “Final” release in December 2008; many other agencies and scientists use the technical data that was wrong regarding Delta island levee and flood history, wrong regarding elevations, etc.
2008	http://watershed.ucdavis.edu/pdf/ComparingFutures_PPIC2008/708EHR_appendixB.pdf http://www.ppic.org/content/pubs/other/708EHR_appendixB.pdf http://www.ppic.org/content/data/Analysis%20of%20the%20Economics%20of%20Delta%20Levee%20Repairs%20and%20Upgrades.xls	UC Davis and PPIC reports on Delta uses DRMS data from 2007
2008	http://www.deltavision.ca.gov/BlueRibbonTaskForce/August2007/Item_9_Attachment_2.pdf	Delta Vision process & meetings
	http://www.spk.usace.army.mil/projects/civil/Delta/Docs/FINAL_Delta_Strategic_Plan_Report.pdf http://www.deltarevision.com/maps/large-owner-axis.JPG	USACE strategic plan for the Delta Large owner axis
2008	http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/phase1_information.cfm http://ryerisland.com/ryer_flood_history_email.jpg http://ryerisland.com/DRMS_wrong_on_ryer_island.htm http://ryerisland.com/images/maps/google12-28-08ryer.jpg http://ryerisland.com/images/maps/mount_wrong_ryer.jpg http://ryerisland.com/images/floods/2008_comparing_futures_tec_appendx.pdf http://ryerisland.com/images/maps/DV_wrong_on_ryer.JPG http://ryerisland.com/images/maps/gm_wrong_ryer_tyler.jpg http://ryerisland.com/images/maps/google-tylerIsland.jpg http://ryerisland.com/images/maps/gm_wrong_ryer.jpg http://ryerisland.com/seismic_map_compare.htm	<p>Drms-wrong on Ryer Island. DRMS Phase 1 “Final” published by DWR December 2008 is revised several times. Go to the bottom of the DWR website to note the last revision was Dec 2009. Usually when a “final” report is revised, one would see a summary of what was changed called “erratum”. Not so with the DRMS Phase 1 report. Perhaps it is because Ryer Island is a targeted island, based on false data of the DRMS Phase 1 report?</p> <p>Google wrong on Ryer location (Google notified, but still listing the other Ryer at least half the time in 2012!</p>
2008	http://ryerisland.com/images/floods/delta_floods_final.pdf http://www.deltarevision.com/deltafloodtimeline.html http://www.deltarevision.com/Issues/delta_floods_timeline.jpg http://www.deltarevision.com/2011/historic-timeline/historic_maps/timeline_delta_levee_failures.pdf http://www.deltarevision.com/Delta_maps/Floods-Islands-Levees.htm	Delta flood history-all sources Delta flood timeline (updated 2011)

2008	http://ryerisland.com/images/floods/DRMSf1_wrong_on_Ryer.pdf	Really review this one showing the mistakes of DRMS Delta Vision documents published utilizing false data of DRMS report
2009	http://www.youtube.com/watch?v=hLmpVV3bq9M	Where and what is the Delta?
2009	http://www.baydeltaconservationplan.com http://www.deltarevision.com/Delta_maps/Restoration_BDCP.htm	Bay Delta Conservation Plan unveiled to the public
2009	http://www.assembly.ca.gov/acs/committee/c26/Publications/PAB%201.pdf http://www.assembly.ca.gov/acs/committee/c26/Publications/PAB%202.pdf http://www.assembly.ca.gov/acs/committee/c26/Publications/PSB%201.pdf http://www.assembly.ca.gov/acs/committee/c26/Publications/PSB%202.pdf http://www.assembly.ca.gov/acs/committee/c26/Publications/PSB%203.pdf	State legislation authorizing Delta Stewardship Council with authority to develop a new Delta Plan including export of more Sacramento River Water
2009	http://ryerisland.com/images/smalls/drms-using_maps_to_hide_mistakes.jpg http://ryerisland.com/images/gov-pdfs/floods/2_Ryers-flooding.pdf http://ryerisland.com/images/floods/delta_floods_final.pdf http://snugharbor.net/images2011/deltastuff/DRMS_figure2-5_compared.JPG http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/Risk_Report_Section_7_Final.pdf	DRMS corrects challenge to Ryer Island data, but does not correct the rest of the data. 2-3 versions show online to this day. correct timeline of Delta floods, including controlled flood areas of the Delta
	http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/Risk_Report_Section_7_Final.pdf	Notice pages 81 and 82 the maps regarding flood history have changed but DWR does not notify anyone of the correction.
2009	http://www.spk.usace.army.mil/projects/civil/Delta/Index.html http://www.spk.usace.army.mil/projects/civil/Delta/Delta%20Initiatives%20-%20State%20of%20Estuary%20Conf%202009.pdf http://www.usbr.gov/mp/intertie/docs/FEIS%20Webfiles/DMC-CA-Intertie_FinalEIS_Vol_I_MainReport_Nov2009.pdf page 9 ryer confusion	Usace summary of initiatives
	http://www.deltarevision.com/maps/salinity-toxins/delta_monitoring.jpg	Governor's drought
	http://www.deltarevision.com/Delta_maps/maps/water_flow_use/ss-reduce_flow.JPG http://www.deltarevision.com/calfed_name_game.html	BDCP confusions
2009	http://science.calwater.ca.gov/pdf/reviews/BOR_appendices/Appx_C_100_Design_Plans_10-19-09.pdf http://www.waterplan.water.ca.gov/docs/cwpu2009/1009prf/3-rr_d_pre-final_pdf_13oct09.pdf http://www.spk.usace.army.mil/projects/civil/Delta/Delta%20Initiatives%20-%20State%20of%20Estuary%20Conf%202009.pdf	
2009	http://baydeltaoffice.water.ca.gov/modeling/deltamodeling/AR2009/2009_Annual_Report	Salinity modeling

	t_Final.pdf	
2010	http://www.dot.ca.gov/hq/tpp/californiainterregionalblueprint/ http://www.dot.ca.gov/hq/tpp/californiainterregionalblueprint/Documents/cib_progress_report/CIB_Update_FactSheet_v6.pdf http://www.ice.ucdavis.edu/CTP/Consultation%20Meeting/CTP%20Addendum%20Final%20Draft%204_9_07WOtrckg.pdf http://www.mtc.ca.gov/planning/2035_plan/Supplementary/T2035_Goods_movement_update.pdf http://www.sacregionblueprint.org/sacregionblueprint/the_project/discussion_draft_preferred_scenario.cfm http://www.sacramentoshipchannel.org/ http://www.marad.dot.gov/ships_shipping_landing_page/mhi_home/mhi_home.htm http://www.mtc.ca.gov/planning/2035_plan/Supplementary/T2035_Goods_movement_update.pdf http://www.mtc.ca.gov/planning/2035_plan/FINAL/T2035_Plan-Final.pdf	Transportation plans for the future are unveiled to the public
2010	http://www.safca.org/Programs_Folsom_Dam.html	More water diversions from Folsom Dam
2010	http://www.deltacouncil.ca.gov/interim-plan http://www.deltacouncil.ca.gov/	Delta Stewardship Council forms and approves and Interim Delta Plan based on CALFED ROD, influenced by the Delta Vision publication, and using the false data from DRMS Phase 1 Report. Chair of DSC was chair of Delta Vision process. DSC Interim Delta Plan
2010	http://www.water.ca.gov/iep/docs/MLAG_agenda_9_22_11_Dsmeltturb.pdf	
2010		Push for National Heritage area Delta Conservancy Formed
2010	http://www.waterboards.ca.gov/board_info/agendas/2010/oct/100510_5.pdf http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/docs/final_rpt080310.pdf page 28 list of projects http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/docs/final_rpt080310.pdf page 41 net delta outflow taf	

2010	http://www.water.ca.gov/iep/docs/FinalPOD2010Workplan12610.pdf	workplan NOAA website live example
2010	http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/docs/final_rpt080310.pdf	Flow criteria for Delta ecosystem
2010	http://snugharbor.net/images2010/media2010-players.pdf http://snugharbor.net/images2011/deltastuff/media2010-players.JPG	Study of historical data spreadsheet. Media ownership study
2010	http://www.deltarevision.com/wrong-maps-of-the-delta.html http://www.deltarevision.com/more_wrong_maps_of_the_delta.html	Examples of wrong or incorrect maps of the Delta used for the last 6 years of planning and studies
2010		Water siphon on Empire track begins construction at the exact location proposed for CCWD intake in previous maps
2010	http://www.epa.gov/region9/mediacenter/impaired-waters/ http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml http://www.waterboards.ca.gov/water_issues/programs/water_quality_goals/index.shtml	
	http://www.deltarevision.com/Issues/waterflow/video/north_delta_low_flow_effect.jpg	How the water in the Delta physically flows
2010	http://www.water.ca.gov/swp/docs/SWPmap.pdf	State Water Project Map found online. DCC shows, but the Sacramento River and its tributaries between Sacramento and the Suisun Bay are eliminated. The path of the Sacramento River has been revised to connect with what may be the former Sacramento Ship Channel. The Delta is not recognized.
2011	http://www.waterboards.ca.gov/resources/data_databases/#rights http://www.waterboards.ca.gov/water_issues/programs/water_quality_goals/docs/wq_goals_text.pdf	Water quality rights review
2011	http://deltarevision.com/calfed_name_game_video.html http://deltarevision.com/calfed_videodocs3.html	Video-CALFED 2000 ROD update-the name game
2011	http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/phase2_information.cfm	DRMS Phase 2 released. Based on false data of Phase 1. Addresses Delta transportation proposals, infrastructure changes, waterway pathway modifications, levee setbacks and more. It is based on phase 1 false data.
2011	http://nees.org/resources/3527 http://www.recordnet.com/apps/pbcs.dll/article?AID=/20110830/A_MEDIA03/110829886/0/A_NEWS02	Report from UCLA levee failure study re earthquakes DSC white papers & IDS
2011	http://www.water.ca.gov/system_reop/docs/system_reop_phase1_plan_of_study_6-2011.pdf	System reoperation plan...look at the "major facilities" maps re conveyance and notice what is missing

2011	http://www.deltarevision.com/Issues/waterflow/bdcp_sacramento_river_minimum_flow_criteria.jpg http://www.deltarevision.com/Delta_maps/maps/water_flow_use/ss-ss.jpg	BDCP meetings, subcommittees, interest groups, etc do NOT agree on restoration plans
2011	http://www.deltarevision.com/Issues/waterflow/video/sacramento_river_future.jpg http://www.deltarevision.com/Issues/waterflow/video/north_delta_low_flow_effect.jpg	New Delta Plan proposed-sketch based on 1880 Illustrated Wasp sketch shows North Delta impacts Method for measuring water flow changes again
2011	http://www.deltarevision.com/sacramento-river-waterflow.html http://www.deltarevision.com/Issues/waterflow/video/2011-sacriverflow.jpg http://www.deltarevision.com/Issues/waterflow/exports_value-2000-2009.jpg http://www.deltarevision.com/sacramento-river-waterflow.html	DWR changes how water flow is calculated...again!
2011	http://snugharbor.net/images2011/deltastuff/observations8-29-2011mwd-meeting.pdf http://www.deltarevision.com/Issues/waterflow/bdcp_sacramento_river_minimum_flow_criteria.jpg	Metropolitan Water District storing water & BDCP diversion summary
2011	http://www.waterboards.ca.gov/board_info/agendas/2011/jun/062111_5.pdf	
2011		Delta Economic Sustainability Plan-notice how the recreation section quotes quite different data from the 2007 memo to the DSC
2011	http://www.swrcb.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/index.shtml http://www.waterboards.ca.gov/centralvalley/ http://geotracker.waterboards.ca.gov/gama/	Water tracking websites
2011	http://www.water.da.gov/floodmgmt/dsmo/docs/NOI_NOP.pdf http://www.planningdocuments.saccounty.net/viewprojectdetails.aspx?projectID=527 http://www.freeportproject.org/nodes/explore/intake/ http://www.bbinfrastructureinc.com/docs/FolsomSouthCanalConnectionProject07-07.pdf http://baydeltaoffice.water.ca.gov/ndelta/TDF/ http://baydeltaoffice.water.ca.gov/ndelta/TDF/documents/Through%20Delta%20Facility%20Final%20VE%20Report.pdf http://www.water.ca.gov/engineering/docs/NBA%20AIP%20Scoping%20meetings%20Powerpoint%20Presentations.pdf see page 9 http://www.bbinfrastructureinc.com/projects/water/sacramento.htm http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=783 http://www.water.ca.gov/engineering/Projects/Current/NBA/ http://www.water.ca.gov/floodmgmt/dsmo/sab/ndp/documents/ http://baydeltaoffice.water.ca.gov/sdb/tbp/index_tbp.cfm http://www.yolobasin.org/bypass_strategy.cfm?useFigures=true http://snugharbor.net/images2011/deltastuff/intakes/2-calfedupdate12-2011.jpg http://snugharbor.net/images2011/deltastuff/intakes/4-calfedupdate12-2011.jpg http://snugharbor.net/images2011/deltastuff/intakes/8-calfedupdate12-2011.jpg http://www.esassoc.com/projects/stockton-delta-water-supply-project http://www.esassoc.com/projects/davis-woodland-water-supply-project	Intake and diversion projects <i>completed</i> or under construction by 2011, all of which divert more water from the Sacramento River: Folsom South Canal 200 million gallons per day Freeport RWA 185 million gallons per day = 177,047 af per year Elkhorn Diversion 210 cfs capacity Sanky Diversion 434 cfs Woodland-Davis Project 46,000 af year North Bay Aquaduct 240 cfs Yolo Bypass annual inundation approx. 4000 taf year Suisun Marsh-Cache Slough hydraulic link Sacramento Water Intake project 160 million gallons per day Thru-Delta reoperation adds another 1000 cfs diversion capacity or 723,970 taf Hood TDF 4000 cfs Georgiana Slough

	Summary compiled at http://snugharbor.net/New-sacramento-river-intakes-2011.html	
2011	http://www.deltacouncil.ca.gov/draft-eir http://www.deltarevision.com/Issues/waterflow/2011-proposed_sacrivier_exports.jpg	DSC releases new Delta Plan for public review (11/4/2011) DRMS Phase 2 published, using some of the false data of DRMS P! Record rain year but NO substantial Delta flooding as the water is diverted elsewhere. Water siphon under construction Empire Tract. Levee sitebacks for Dead Horse Island and dredging work along Mokelumne River system begins. Intertie per CALFED completed
2011	http://www.water.ca.gov/environmentalservices/docs/mntry_plus/Appendices%20-%20Volume%202/Appendix%20F%20-%20Docs%20Incorporated%20by%20Reference.pdf	Just one of the documents to review for current eir processes...3588 pages! Page 1172 "salinity control is necessary"-good simple statement
2011	http://socalwaterdialogue.org/calendar/ppt/2011/5%20-%20Deven%20-%20Southern%20California%20Water%20Dialogue%20102611.pptx	MWD manages to store up extra water during a "drought"...
2011	http://www.waterplan.water.ca.gov/waterpie/	Quick link area to the different state and federal agencies helping to split up the "water pie".
2011	http://www.youtube.com/watch?v=bqZSxCHSk04&feature=mfu_in_order&list=UL http://www.youtube.com/watch?v=-AFHfvo9Zfs&feature=mfu_in_order&list=UL http://www.youtube.com/watch?v=i2s2ssOKyVw&feature=mfu_in_order&list=UL	Video on flow effects under new Delta Plan Video looking at the value of the extra water exports, estimated
201	http://www.water.ca.gov/system_reop/docs/system_reop_phase1_plan_of_study_6-2011.pdf	System reoperation will reduce Sacramento River flows to 15,000 TAF including the Yolo Bypass annual flows.
Jan 2012	(see below)	Links to the different documents all posted for review and comment within 1 month of each other. Each series of documents is not by itself a whole plan for California Water, but taken together it could be construed that way. In the meantime, documents that Delta-area residents were given the opportunity to have input seem to be largely ignored.
2012	http://www.deltacouncil.ca.gov/sites/default/files/documents/files/Final_Interim_Plan_Revised_100827.pdf	Delta Interim Plan (2010 but in effect and construction projects for conveyance and in-delta storage proposed for action in 2012-2013)
2012	http://www.deltacouncil.ca.gov/delta-plan-draft-eir	Delta Plan
2012	http://www.deltacouncil.ca.gov/sites/default/files/documents/files/Fifth_Staff_Draft_Delta_Plan_080211.pdf	5 th Staff Draft of Delta Plan and Appendix (first published in August 2010 but incorporated into Delta Plan so must

	http://www.deltacouncil.ca.gov/sites/default/files/documents/files/Fifth_Staff_Draft_Delta_Plan_080211_Appendices_0.pdf	be reviewed with Delta Plan, if possible
2012	http://www.baydeltaconservationplan.com/Library/DocumentsLandingPage.aspx http://www.baydeltaconservationplan.com/Library/DocumentsLandingPage/BDCPPlanDocuments.aspx	BDCP is releasing sections of the “conservation plan” for review, but its not the official comment period yet. However, since the Delta Plan incorporates BDCP by reference, it must be reviewed and what is available considered.
2012	http://baydeltaconservationplan.com/Libraries/Whats_in_Plan/Pages%20from%20draft_BDCPReport_11292010_ClickableLinks7-Ch_3.pdf http://www.bdcplib.com/Libraries/Whats_in_Plan/figures/Chpt_3_figs/Fig_3.8_Distribution_Inland_Dune_Scrub_Lands.pdf http://www.bdcplib.com/Libraries/Whats_in_Plan/figures/Chpt_3_figs/Fig_3.2_Restoration_Opportunity_Areas%20Areas%20%28ROAs%29.pdf	Chapter 3 re conservation zones ROA – Restoration Opportunity Areas
2012	http://www.baydeltaconservationplan.com/Library/DocumentsLandingPage/EIREISDocuments.aspx	EIR/EIS Docs
2012	http://bdcplib.com/Libraries/Dynamic_Document_Library/Chapter_3_-_Figures.sflb.ashx	Possible “conservation” alternatives after most of the Sacramento River water flow is diverted, so state agencies and the water exporters have to decide what to do with what’s left...
2012	http://bdcplib.com/Libraries/Dynamic_Document_Library/Chapter_15_-_Figures.sflb.ashx http://bdcplib.com/Libraries/Dynamic_Document_Library/Chapter_19_-_Figures.sflb.ashx	Recreation facilities by county...misses a few! transportation
2012	http://www.baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/First_Amendement_BDCP_MOA_Redline_Edits_12-16-11.sflb.ashx	Gang up on the Delta
2012	http://www.resources.ca.gov/docs/Highlights_of_the_BDCP_FINAL_12-14-10_2361.pdf	Summary from 2010
2012	http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/phase2_information.cfm http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/phase1_information.cfm	DRMS Phase II Look at this! DRMS Phase 1 data used in Phase II and BDCP even though there were sections that were entirely wrong
2012	http://www.water.ca.gov/cvfm/docs/FCSSRDec2011_FullDocument.pdf 2008 http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/timeline.cfm	Flood control system status report, which is different than...
2012	http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/timeline.cfm	As of 2012 the DRMS Phase 1 false Ryer Island data shows online and given the failure of DWR to notify drafters of the Delta Plan of DRMS data corrections, the wrong data continues to be used and sited in 2012.
2012	http://www.water.ca.gov/cvfm/docs/2012_CVFPP_FullDocumentLowRes_20111230.pdf	2012 Central Valley Flood Protection Plan, which is

		different than...
2012	http://www.water.ca.gov/cvfm/docs/SPFCDescriptiveDocumentNov2010.pdf	State Plan of Flood Control Description Document (2010)
2012	http://www.water.ca.gov/floodmgmt/docs/map_sac&sj_designflows.pdf	Map of flood control plan in 2012...compared to the original flood plan of the 1950's...notice the diversion of all Mokelumne River water as if its part of San Joaquin River flow? Hence the changes to the hydraulic regions of California as shown by the revised maps...
2012	http://deltarevision.com/sacramento-river-waterflow.html http://deltarevision.com/computer-modeling.html	Hydraulic regions then and now and how it affects water flow in and out of the Delta
2012	http://www.water.ca.gov/floodmgmt/docs/map_sac_sj_schematic.pdf	System schematic then and now.
-2012 constr	http://www.water.ca.gov/floodmgmt/dsmo/docs/NDFEIR.pdf (2010 ier-2012 construction) http://www.water.ca.gov/floodmgmt/dsmo/sab/ndp/ http://www.water.ca.gov/floodmgmt/dsmo/docs/Directors_Decision_Memo(DDM).pdf http://www.water.ca.gov/floodmgmt/dsmo/docs/NDFEIR.pdf	North Delta Improvement Project...conveyance planning using restoration wording. Note that in the 2000 CALFED ROD all of this was part of the "conveyance" plan. Drive around the Delta in 2012 to see the construction underway! http://deltarevision.com/2012_delta_construction.html
2012	http://www.dot.ca.gov/hq/tpp/offices/osp/ctp2025_files/CTP_2006.pdf http://www.dot.ca.gov/hq/tpp/index_files/ctp_2030_oct_2007.pdf http://www.dot.ca.gov/hq/tpp/offices/osp/ctp.html	California Transportation plan and addendum
2012	http://www.dot.ca.gov/hq/tpp/californiainterregionalblueprint/images/maps/Map_3_SAC_OG_02092010.pdf	Sacramento County reference to Blueprint
2012	http://www.dot.ca.gov/hq/tpp/californiainterregionalblueprint/images/maps/Statewide_Gap_Map.pdf	Goods movement plan-no Sac Ship Channel
2012	http://www.dot.ca.gov/hq/tpp/californiainterregionalblueprint/images/maps/Focus_Route_Dev_Strat-1998-2020.pdf	
2012	http://www.dot.ca.gov/hq/tpp/californiainterregionalblueprint/images/maps/Priority_Regions-Corridors.pdf http://www.dot.ca.gov/hq/tpp/offices/osp/ctp2025_files/ctp13.pdf http://www.dot.ca.gov/hq/tpp/offices/osp/ctp2025_files/ctp16.pdf http://www.dot.ca.gov/hq/tpp/offices/osp/ctp2025_files/ctp16.pdf http://www.dot.ca.gov/hq/tpp/index_files/ctp_2030_oct_2007.pdf	Seaports and good movement corridors
	http://www.co.solano.ca.us/depts/rm/planning/general_plan.asp	Solano County General Plan Update 2008
	http://www.cityofwestsacramento.org/generalplan2030/pdf/wsgpu_br_7reccult.pdf http://www.cityofwestsacramento.org/generalplan2030/pdf/wsgpu_altsnews.pdf	West Sacramento planning
	http://www.sacgp.org/MasterEIR.html http://www.sacgp.org/documents/04_Part2.05_Utilities.pdf	
	http://www.sacregionblueprint.org/sacregionblueprint/the_project/scenariomap_region.h	Sacramento County Blueprint, including the Delta islands

2007	http://www.ppic.org/content/pubs/report/R_207JLR.pdf	Limits on water exports imposed to protect endangered fish species of the Delta region. PPIC releases a report to influence decisions, but its based on DRMS Phase 1 unverified and highly criticized data.
2007	http://calwater.ca.gov/content/Documents/meetings/FTDDCCTDF/Feb15_07_Meeting/TD_FDCCFT_Feb07.pdf	Barrier-gates, Franks Tract and changes to McCormack/Williamson Tract are proposed as "restoration" projects but were originally listed as "conveyance" projects in CALFED ROD
2007	http://www.deltavision.ca.gov/Context_Memos/Recreation/Recreation_Memo_Intertation_1.pdf	Memorandum prepared for Delta Vision review recognizes over 14 million total user days per year for boating in the Delta.
	http://www.waterplan.water.ca.gov/docs/cwpu2009/0310final/v4c05a02_cwp2009.pdf	References to other context memorandums
2008	http://www.swrcb.ca.gov/board_reference/docs/summary_strategic_plan_2008-2012.pdf http://www.swrcb.ca.gov/water_issues/hot_topics/strategic_plan/docs/final_draft_strategic_plan_update_090208.pdf http://www.swrcb.ca.gov/water_issues/hot_topics/strategic_plan/docs/073008_appendix_4_water_rights.pdf http://www.swrcb.ca.gov/water_issues/hot_topics/strategic_plan/docs/2008_2012/020608_presentation.pdf lots of maps PAGE 26..INAPPROPRIATE INCONSISTENCIES	"inconsistencies"
2008	http://www.spn.usace.army.mil/projects/o&m/PinoleShoalM/10_PinoleShoalMStudy_O&M.pdf http://www.spn.usace.army.mil/projects/pinoleshoalmanagemento&m.html	USACE Delta sediment planning
	http://www.deltarevision.com/Delta_maps/maps/water_flow_use/usbr_delta_standards_summary.jpg	Proposed revised water quality standards
2008	http://calmap.gisc.berkeley.edu/resin_public_docs/DRMS_phase1_sections/Risk_Report_Section_7_Final.pdf http://ryerisland.com/images/floods/Risk_Report_Section_13_Final.pdf http://srdhs.org/Documents/June%202008.pdf http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/Geomorphology_TM.pdf http://ryerisland.com/images/floods/DRMSf1_wrong_on_Ryer.pdf	DRMS report on floods incorporates islands not in the Delta in order to inflate statistics. Pages 80 and 81 show supposed historical Delta floods-URS/DWR is wrong.
2008	http://www.deltarevision.com/maps/salinity-toxins/usbr_delta_standards_summary.jpg	Proposed salinity standards
	http://www.deltarevision.com/maps/salinity-toxins/delta_islands.JPG http://www.deltarevision.com/maps/salinity-toxins/2005_dwr_monitor_sites.jpg	Map of monitoring stations
2008	http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/timeline.cfm	As of January 2012, the DRMS Phase 1 timeline still

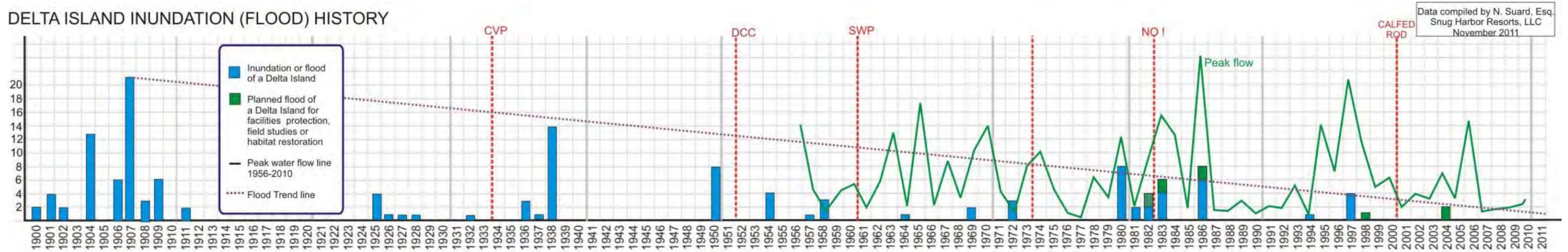
	tml http://www.sacregionblueprint.org/implementation/pdf/blueprint-book.pdf http://www.sacog.org/2035/ http://www.sacog.org/2035/2011/11/draft-mtpscscs-released/	of the county
	http://www.sacog.org/2035/files/Draft-mtpscscs/appendices/E-3%20Land%20Use%20Forecast%20Background%20Documentation.pdf	See page 71 for the projection for unincorporated Sacramento County residential units, which includes Grand Island area....
	http://www.deltarevision.com/Issues/waterflow/exports_value-2000-2009.jpg	
	http://www.acwa.com/	
	http://www.water.ca.gov/floodmgmt/dsmo/docs/Fluvial_Process_Optimization.pdf	
	http://www.mwdh2o.com/mwdh2o/pages/yourwater/supply/delta/background.html	Metropolitan Water District –Los Angeles, etc
	http://westlandswater.org/wwd/default2.asp?cwide=1402	Westlands Water District-Kern County, etc
	http://www.zone7water.com/index.php?option=com_content&task=view&id=47&Itemid=218	Zone 7 Pleasanton, Livermore, San Ramon, etc
	http://www.saic.com/eeandi/projects/bay-delta-conservation-plan.html	SAIC one of the main consultants
	http://articles.sfgate.com/2006-03-15/business/17284592_1_levee-repairs-urs-division-urs-corp http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/Risk_Report_Section_0_Final.pdf	URS consultant for DRMS 1 & II
	http://www.n-h-i.org/nc/programs/ecosystem-restoration/delta-restoration.html?sword_list%5B%5D=delta	Driving force on restoration, it appears
	http://www.water.ca.gov/nav/nav.cfm?loc=t&id=100 http://www.waterboards.ca.gov/waterrights/	DWR website pages related to the Delta-just a few of them...and the waterrights site

<http://caselaw.findlaw.com/ca-court-of-appeal/1538571.html>

ATTACHMENT B TO COMMENTS ON THE DELTA PLAN (SUBMITTED BY N. SUARD, ESQ, SNUG HARBOR RESORTS, LLC ON RYER ISLAND AND STEAMBOAT SLOUGH)

Of the "160" Delta Island floods/failures claimed by DWR, note that since 1987 there have been three *intentional* or explained island floods and 4 *accidental* ones during the 1997 record rain flows. Look for the DWR map of which islands flooded in 1997 to better understand the locations. The last major island floods happened in 1986, and considerable levee improvements have been made since that time. Floods that happened before the levees were improved should not be counted for estimates of *current* risk, unless one wants to create a false and misleading impression of the current status of the Delta-which is exactly what DWR did! The timeline was made using a review of all available past Delta flood reports, which can be found at http://ryerisland.com/images/floods/delta_floods_final.pdf and here is one reason you may not hear or see this type of data in the media <http://snugharbor.net/images2011/deltastuff/media2010-players.JPG>

DELTA ISLAND INUNDATION (FLOOD) HISTORY



SUMMARY: Look at the last 100 years of Delta levee history, and you will see the Delta is NOT at risk for eminent flooding due to levee failure, contrary to media hype. When one reviews the history of Delta flooding, it is quite clear that the improvements to levees initiated by the CVP plan greatly reduced the incidents of flooding in the Delta over time. Flooding in the 1980's appears to be related to high water flow winters; thereafter substantial improvements were made to Delta levees under SWP plans. In the mid-1990's there was record water flow, but limited number of floods, with several islands **intentionally** flooded for conveyance facility protection & water flow management, restoration projects and in 2004 for the In-Delta Storage field studies.

As of 2000 the state so closely manages the flow of water through the Delta such that incidents like the 2004 Jones Tract Field Studies can be classified only as a science/study project or an engineering/ management mistake. (Media hype called it a "sunny day failure")

As to the risk of failure due to seismic action, no Delta levee has been known to fail in the last 110 years due to any of the large earthquakes experienced in California. Media hype says there is a very high likelihood of failure due to seismic risk, so there is a proposal to "pre-flood" many Delta islands. Perhaps the next proposal will be to pre-demolish any other facility in a high seismic zone of California for the "public benefit".

http://deltarevision.com/2011/historic-timeline/historic_maps/timeline_delta_levee_failures.pdf

http://www.science.ca.water.ca.gov/pdf/isb/ISB_packet_public_meeting_092104_v2.pdf

<http://www.deltacouncil.ca.gov/delta-independent-science-board>

http://www.water.ca.gov/floodmgmt/dsmo/sab/drmssp/phase1_information.cfm#

<http://www.water.ca.gov/nav/nav.cfm?loc=&id=106>

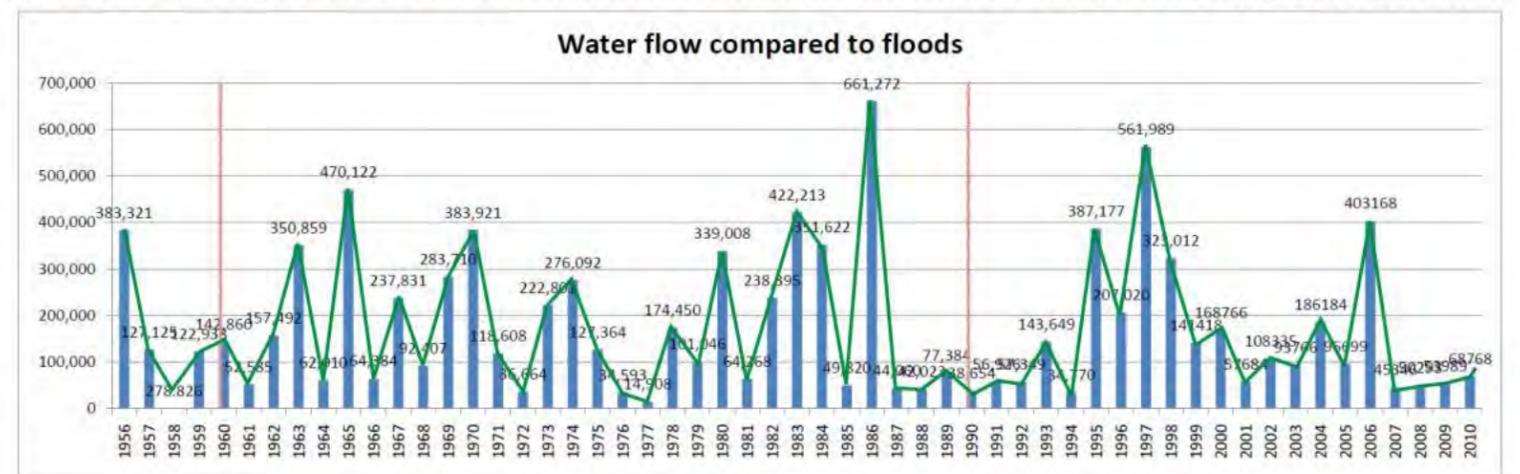
http://ryerisland.com/images/floods/delta_floods_final.pdf

http://deltarevision.com/maps_historic/1975_controlled_flood_islands_of_the_delta.jpg

http://www.deltarevision.com/Delta_maps/Floods-Islands-Levees.htm

http://deltarevision.com/1990-1999_docs/NHI-Packard_delta_study1998.pdf

http://deltarevision.com/Delta_maps/Water_flow_and_use.htm



Peak Delta inflow (TOT) data is from the following Dayflow website: <http://www.water.ca.gov/dayflow/output/Output.cfm> accessed on 2/10/2011 (click on link for excel spreadsheet)

To view the data compiled for the above chart in larger view size, and for links to the resources, please go to http://deltarevision.com/Issues/delta_floods_timeline.jpg for the graphic and

http://deltarevision.com/2011/historic-timeline/historic_maps/timeline_delta_levee_failures.pdf and http://deltarevision.com/Delta_maps/Floods-Islands-Levees.htm for additional data.

For a video with documents reviewing the Delta flood history go to <http://deltarevision.com/Controlled%20flooding%20of%20the%20Delta.html>

Summary Of Delta Island Flood Studies		compiled by N. Suard				cument copies available at http://DeltaRevision.com certain islands emphasized to point out conflicts of information				compiled by N. Suard Feb 2010				Most likely to be correct	
Data from many different Delta Island Inundation History reports and maps were compiled to show the substantial conflict of historical records depending on the agency															
ISLAND NAME	YEAR FIRST RECLAIMED	YEAR FIRST RECLAIMED	YEAR FIRST RECLAIMED	DWR Report - 1975	USCF Sac Dist July 1979	DWR Bulletin 192-82 Dec 1982	2005 DWR Delta Overview	2006 UC Berkeley Delta Initiative	DWR-EDAW 2005 REPORT	DWR-2008	CAL FIED March 1998	USACE 2006 Report to Congress			
	DWR-DRMS 2008	DWR Status & Trends 2007	1959 Pacific Historian or state & county records	Islands Flooded since 1930	Delta Islands Flooded from 1955-1984	Delta Levees Investigation	1939-1966 and 1967-2004	Historical Inundations source: DWR and URS Corp	Flood History 1900-2004	1900 TO 2005	"Historical Inundations"	Historic Levee Failures 1967-2004			
Island Totals				32	18	18	55		158	158	144	31			
Andrus Island	1868-1879	1870-1880	1860-1900					4 to 5	4 1902,1907,1908,1972	Included with Brannan	4 1902,1907,1908,1972	1 1972			
Bacon Island	1910-1920	1910-1920	1910-1930				1938		1 1938	1 1938					
Bethel Island	1890-1899	1900-1910	1900-1910					4 to 5	4 1907,1908,1909,1911	4 1907,1908,1909,1911	5 1907,1908,1909,1911,1926	1 1927			
Big Break (remains flooded)	1914-1921	1910-1920						1	2 1927,1928	1 1927	1 1927				
Bishop Tract									1 1904	1 1904					
Boggs Tract															
BouJin Island	1880-1889	1870-1880	1860-1900					4 to 5	4 1904,1907,1908,1909	4 1904,1907,1908,1909	5 1904,1907,1908,1909,1925				
Brack Tract	1880-1890	1880-1900	1860-1900					1	1 1904	1 1907	2 1904,1908				
Bractford Island	1890-1899	1900-1910	1900-1910			1 1983			2 1950,1983	2 1950,1983	2 1950,1983	1 1983			
Brannan-Andrus Island	1868-1879	1870-1880	1860-1900	1 1972		1 1983		4 to 5	5 1902,1904,1907,1909,1972	5 1902,1904,1907,1909,1972	5 1902,1904,1907,1909,1972	1 1972 (Brannon)			
Brown Island (Suisun)															
Byron Tract		1900-1910	1900-1910						1 1907	not included	1 1907				
Cache Hass															
Canjos Island (Suisun)															
Cash Ranch Tract		1880-1890	1860-1900	1 1958					1 1958	not included	1 1958				
Callan Court Tract (remains flooded)		1900-1910							2 1901,1907	2 1901,1907	2 1901,1907				
Covey Island		1890-1900							1 1907	1 1907					
Dead Horse Island	1890-1899	1890-1900	1860-1900	1 1955	2 1955,1980	2 1955,1980	1980,1986,1997	6 to 8	6 1950,1955,1958,1980,1986,1997	6 1950,1955,1958,1980,1986,1997	5 1950,1955,1980,1986,1997	3 1980,1986,1997			
Decker Island	1914-1921	1870-1880						0							
Dwinder Tract	1868-1879	1870-1880													
Dutton Island (remains flooded)									1 1937	1 1937	1 1937				
Egbert Tract		1880-1870	1880-1900												
Edgerty Island									1 1983	1 1983	not included				
Empire Tract	1900-1909	1900-1910	1900-1910	1 1955	1 1955	1 1955	1955	2 to 3	2 1950,1955	2 1950,1955	1 1955				
Fabian Tract	1890-1899	1880-1890							1 1901,1906	1 1901,1906	2 1901,1906				
Fay Island									1 1983	2 1983,2008	1 1983				
Frank Tract (remains flooded)									3 1907,1938,1938	3 1907,1938,1938	3 1907,1938,1938				
Glanville Tract		1910-1920	1910-1930				1955,1958,1964,1986,1997	2 to 3	2 1986,1997	2 1986,1997	2 1986,1997				
Grand Island	1868-1879	1890-1900	1860-1900					1	1 1955	1 1955	not included				
Grizzly (Suisun)									2 1983,1908						
Holland Tract	1890-1899	1900-1910	1900-1910		1 1980	1 1980			1 1980	1 1980	1 1980				
Hutchins Tract	1890-1899	1900-1910	1900-1910					0							
Isle Island				1 1955					1860-1900						
Jersey Island	1890-1899	1900-1910	1900-1910				1981,1983	4 to 5	2 1950,1955	2 1950,1955	not included				
King Island	1914-1921	1910-1920	1910-1930					0	4 1900,1904,1907,1909	4 1900,1904,1907,1909	5 1900,1904,1907,1908,1909				
Liberty Farms		1910-1920						1							
Liberty Island		1910-1920						1							
Little Egbert Tract		1860-1870	1860-1900												
Little Franks Tract (remains flooded)								2 to 3	3 1981,1982,1983	3 1981,1982,1983	4 1981,1982,1983,1983	2 1981,1983			
Little Holland Tract (remains flooded)									1 1983	not included					
Lower Jones Tract	1890-1899	1900-1910	1900-1910		1 1980	1 1980		4 to 5	2 1980,1994	2 1980,1994	4 1980,1982,1986,1994	2 1980,2004			
Lower Roberts Island	1868-1879	1870-1880	1860-1900					1	2 1907,1980	4 1906,1907,1980,2004*	2 1907,1980				
Lower Sherman Island (remains flooded)									1 1906	1 1906					
Mandeville Island	1914-1921	1910-1920	1910-1930				1938	1	1 1938	1 1938	2 1907,1925				
Marshall-Williamson Tract		1910-1920	1910-1930	3 1955,1958,1964	3 1955,1958,1964	3 1955,1958,1964	1955,1958,1964,1986,1997	6 to 8	7 1938,1950,1955,1958,1964,1986,1997	7 1938,1950,1955,1958,1964,1986,1997	7 1938,1950,1955,1958,1964,1986,1997	2 1986,1997			
McDonald Tract or Island	1914-1921	1910-1920	1910-1930	1 1982			1982	1	1 1982	1 1982	1 1982				
McMullen Ranch Tract	1914-1921	1910-1920	1910-1930	1 1936			1936	1	1 1997	2 1950,1997	not included				
Marritt Island	1868-1879	1890-1900	1860-1900					2 to 3	2 1926,1983	1 1938	1 1938				
Middle Roberts Island	1868-1879	1870-1880	1860-1900					0							
Mirand Island (remains flooded)		1900-1910					1969,1983		1 1938	2 1920,1938					
Mossdale RD 17 Tract Rec Dist 17)		1870-1880					1950,1997		3 1901,1911,1950	3 1901,1911,1950	3 1901,1911,1950				
New Hope Tract	1890-1899	1880-1890	1860-1900	1 1955	1 1955	1 1955	1955,1986	6 to 8	7 1900,1904,1907,1928,1950,1955,1986	7 1900,1904,1907,1928,1950,1955,1986	5 1900,1904,1907,1928,1986	1 1986			
Onopot Tract	1890-1899	1900-1910	1900-1910					1							
Palm Tract	1890-1899	1900-1910	1900-1910						1 1907	1 1907	1 1907				
Paradise Junction		1870-1880	1860-1900				1997		1 1997	3 1920,1950,1997	not included				
Pescadero Tract	1870-1880	1890-1900	1860-1900	1 1997			1938,1950,1997	2 to 3	3 1938,1950,1997	3 1938,1950,1997	2 1938,1950				
Pierson District		1870-1880	1860-1900												
Prospect Island	1890-1899	1910-1920					1980,1982,1983,1986	6 to 8	7 1980,1981,1982,1983,1986,1995,1997	1983,1980,1981,1982,1983,1986,1995,1997	6 1980,1981,1983,1983,1986,1997	4 1980,1982,1983,1986			
Rio 1007 Tract	1914-1921	1910-1920	3 1932,1938,1955		1 1955	1 1955	3 1936,1938,1955,1986		4 1936,1938,1950,1955	4 1936,1938,1950,1955	3 1936,1938,1955	1 1986			
Rhode Island									1 1936	1 1936					
Rio Island (Suisun)									1 1938	2 1938,1971	1 1938				
Roscoe Tract	1890-1899	1900-1910	1900-1910												
Rio Blanco Tract		1910-1920													
Rough and Ready Island		1870-1880	1860-1900												
River Island (north of Rio Vista)	1900-1909	1890-1900	1860-1900					2 to 3	2 1904,1907	3 1904,1907,1986	2 1904,1907				
River Island also called River (Suisun)								0							
River Junction or Just "River"		1880-1890							1 1997	3 1958,1983,1997	not included				
Sagest Barnhart Tract	1868-1879	1870-1880	1860-1900	2 1937,1969			1969	4 to 5	2 1904,1907	2 1904,1907	2 1904,1907	1 1969			
Shima Tract	1914-1921	1910-1920							5 1904,1906,1909,1937,1969	5 1904,1906,1909,1937,1969	4 1904,1906,1909,1937,1969	1 1969			
Shin Koe Tract	1914-1921	1910-1920		1 1958	1 1983 2 times	1 1983 2 times		1	1 1983	1 1983	2 1983,1983				
Smith Tract		1880-1880			1 1958	1 1958		1	4 1938,1958,1965,1986	4 1938,1958,1965,1986	1 1938				
Snug Harbor (formerly Blake or Martins Is)						1878 & 1943									
Stack Tract	1890-1899	1880-1890	1860-1900					2 to 3	2 1904,1907	2 1904,1907	2 1904,1907				
Stewart Tract		1870-1880	1860-1900					2 to 3	3 1938,1950,1997	3 1938,1950,1997	3 1938,1950,1997				
Sutter Island	1900-1909	1890-1900	1860-1900				1938,1950,1997		2 1904,1907	2 1904,1907	2 1904,1907	1 1997			
Terminus Tract	1914-1921	1880-1890	1860-1900		1 1958	1 1958	1958		2 1907,1958	2 1907,1958	2 1904,1907				
Twitchell Island	1890-1899	1870-1880	1860-1900						3 1906,1907,1908	3 1906,1907,1908	3 1906,1907,1909				
Tyer Island	1890-1899	1890-1900	1860-1900				1986	2 to 3	3 1906,1907,1986	3 1906,1907,1986	3 1906,1907,1986	1 1986			
Union Island	1890-1899	1870-1880-1890	1860-1900						1 1906	1 1906					
Upper Jones Tract	1890-1899	1900-1910	1900-1910				2004	4 to 5	3 1906,1980,2004	1 2004	2 1906,1980				
Upper Roberts Tract or Island	1868-1879	1870-1880	1860-1900						1 1938	1 1938	2 1980,2004				
Vaile (or meach)		1900-1910									1 1938				
Van Sickle (Suisun)	1900-1909	1890-1900							2 1983,1998	not included	4 1957,1972,1980,1983				
Venice Island	1900-1909	1900-1910	1900-1910	3 1932,1938,1950	1 1982	1 1982	1932,1938,1950	6 to 8	1904,1906,1907,1909,1932,1938,1950,1958	1904,1906,1907,1909,1932,1938,1950,1958	1904,1906,1907,1909,1932,1938,1950,1958	1 1982			
Victoria Island	1900-1909	1900-1910	1900-1910					2 to 3	2 1901,1907	2 1901,1907					

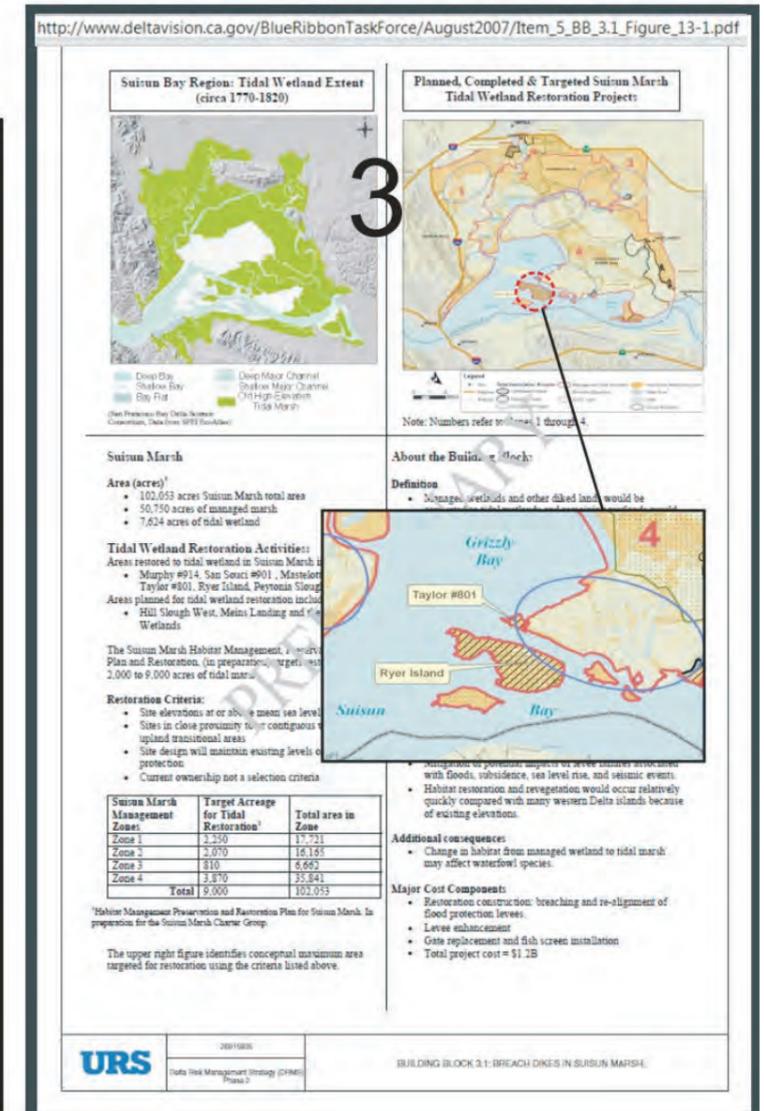
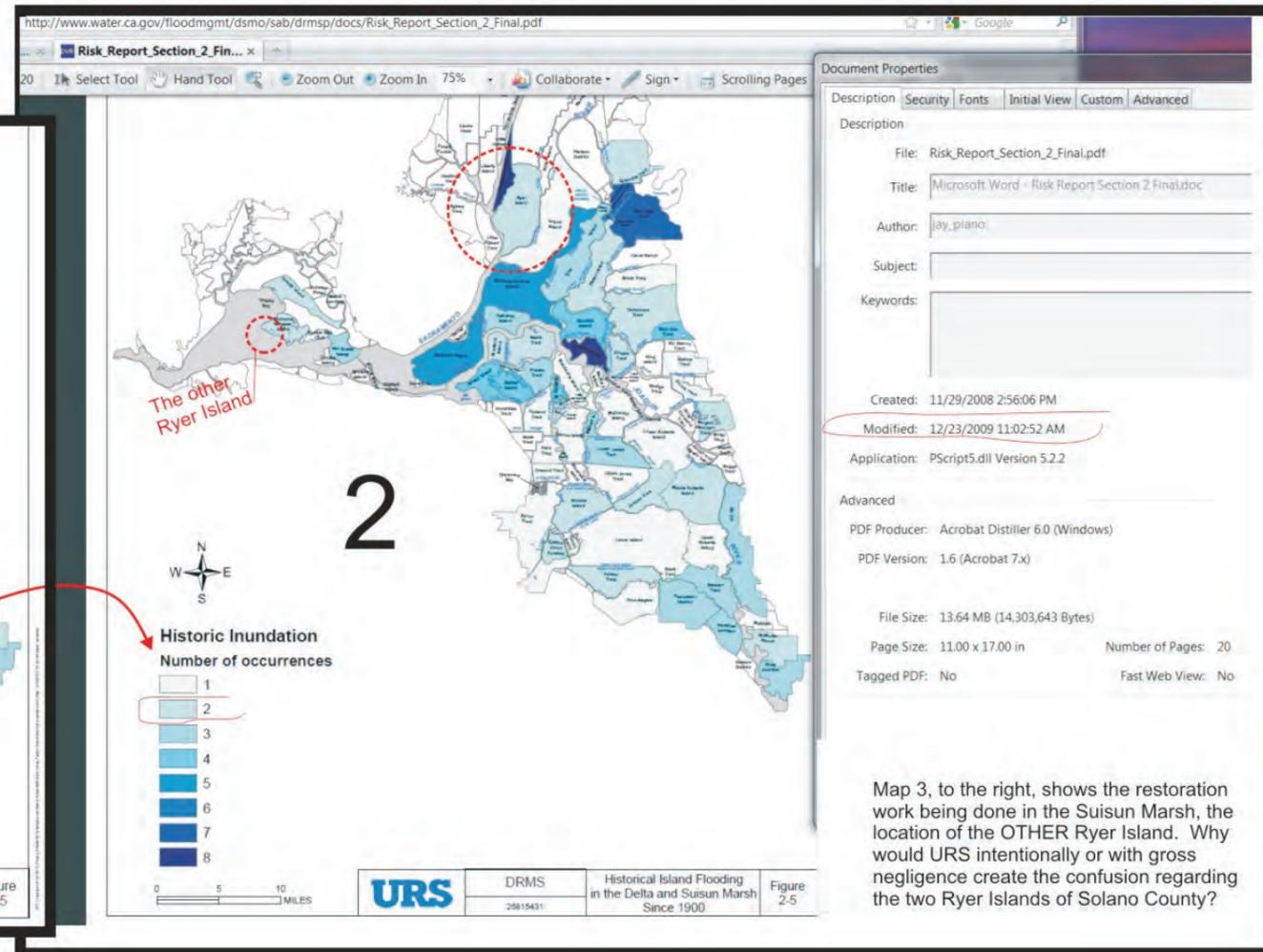
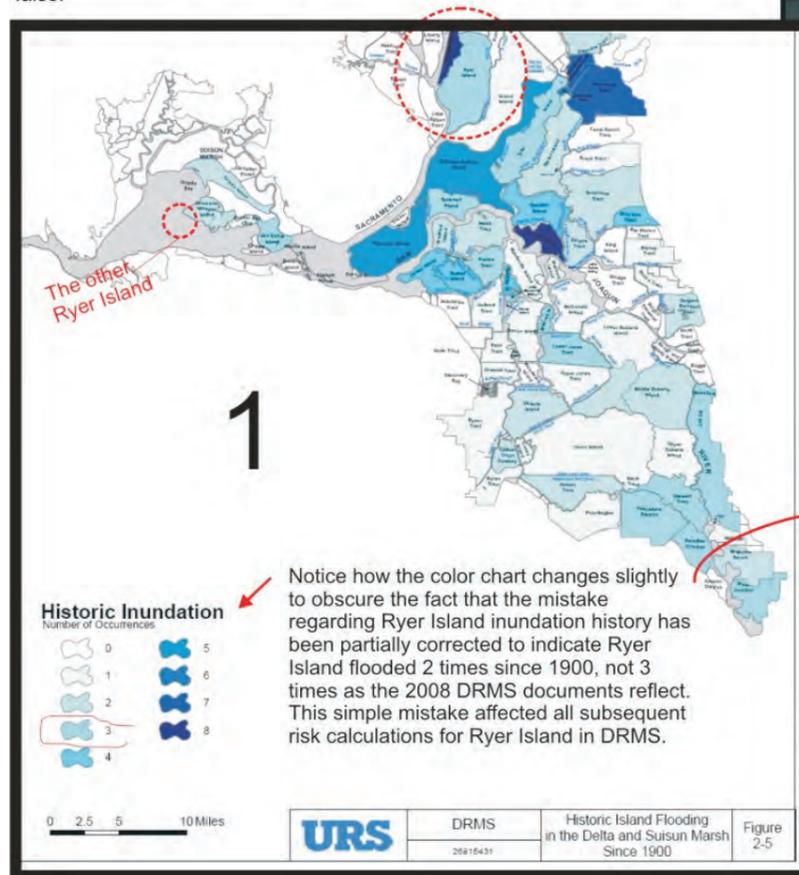
ATTACHMENT B-3 TO DELTA PLAN COMMENTS

Using maps to intentionally mislead the viewer:

Map 1 below comes from DRMS 2008 Phase 1 Final Report, Section 2, Figure 5. Ryer Island is circled in red by me for reference. Note there are two Ryer Islands in Solano County. The second Ryer Island does not show on this map, but it is the subject of a restoration project in the Suisun Bay area.

Map 2, to the right, is a revised version of the same DRMS report, section and Figure, apparently modified on 12/23/2009 after DWR verified their data regarding Delta Island inundation history was incorrect. DWR was notified by N. Suard in August 2008, and several times in 2009 that the data used for DRMS report was false.

While it is appreciated that DWR finally correct portions of the DRMS report, it appears to have been done in an intentionally misleading way, and no notice of the corrections was provided to the hundreds of scientists still utilizing incorrect data on maps regarding Delta island histories. Historical and current data regarding Delta islands is being used to determine island futures, so using correct data is important!



Go to http://snugharbor.net/images2011/deltastuff/DRMS_figure2-5_compared.JPG to view full size version of this poster.

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Mr. Paul Dabbs
California Department of Water Resources, Strategic Water Planning
Statewide Integrated Water Management
P.O. Box 942836
Sacramento, CA 94236-0001

November 19, 2009

RE: California Water Plan Update 2009-Objection to use of Delta Risk Management Strategy Phase 1, Final Report data and/or as a reference prior to publication of pending revision to correct false Delta Islands data referenced in DRMS.

Dear Mr. Dabbs,

I am writing to object to the reference and/or use of **Delta Risk Management Strategy Phase 1, Final Report (DRMS)** as a reference in the California Water Plan Update 2009. Beginning in 2008, DWR representatives were notified of *incorrect* Delta Island inundation historical data found in DRMS Phase 1, Final Report. At a minimum, incorrect data is found in Sections 4, 7, 9 and 13. DWR representatives have acknowledged the mistake as of October 15, 2009, and written verification can be provided upon request. Specifically, DRMS Phase 1 reported both false and inflated inundation history for Ryer Island (borderer by Steamboat Slough, Cache Slough and Miner's Slough), and the false information was thereafter utilized to calculate important resource planning matters such as flood risk, seismic risk and levee stability. Publishing false information regarding Ryer island has a measurable detrimental effect on all residents, farmers and businesses of this large and productive Solano County island. One might also assume that if DRMS is incorrect as to the only island records I reviewed, it may be incorrect as to other island inundation records as well.

Out of respect for the persons involved in gathering and publishing the incorrect DRMS Island data, I have waited a month for confirmation that corrections are/will be made and notice sent out to all appropriate agencies, as indicated by the DWR representatives. One would assume that the agency and/or consultants responsible for publishing the incorrect information would take immediate steps to revise the report to avoid additional incidents of publication of false data. However, I received yesterday afternoon an email from a representative of the responsible agency/office indicating the state does not have the funding to correct the DRMS Phase 1 Final Report, even though DWR acknowledges it is wrong. ***I therefore request that all reference to DRMS Phase 1, Final Report, and all data regarding Delta Island history and the risk calculations thereof be removed from the California Water Plan Update 2009 until such time as a corrected DRMS Phase 1 Report has been published.***

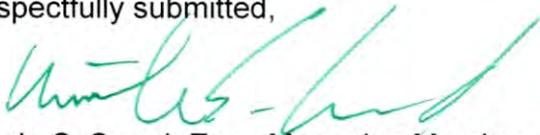
Continued next page

Given the fact that the California Water Plan Update utilizes data from DRMS Phase 1 Final Report, and references the report extensively, I am also requesting an extension of the public comment period until January 15, 2010, to give me time to review the complete report and provide you with a complete list of instances where reference to DRMS Phase 1 Final Report and/or data should be removed from the California Water Plan Update 2009.

As a general comment, I object to any proposed revisions to levees, water flows, conveyance, salinity and infrastructure that would detrimentally affect current uses of Delta Islands *without first completing accurate scientific assessments*, and second, consulting directly with the land owners affected by proposed revisions to determine appropriate mitigation of impact on the land owners and businesses of the Delta. Please note that I do *not* object to reasonable use of Delta water resources for transport elsewhere if such reasonable use does not negatively impact the lands, historic river towns, people, businesses, recreation and other permitted existing uses of the Delta today.

Thank you for your attention to this important matter.

Respectfully submitted,



Nicole S. Suard, Esq., Managing Member, Snug Harbor Resorts, LLC

Attachments:

DRMS Phase 1 Final Report Ryer Island data:

http://ryerisland.com/images/floods/DRMSf1_wrong_on_Ryer.pdf

DWR confirmation of incorrect data:

[Http://ryerisland.com/ryer_flood_history_email.jpg](http://ryerisland.com/ryer_flood_history_email.jpg)

Cc by email:

"Paul Marshall" <marshall@water.ca.gov>,

"Bagheban, Sean" <seanb@water.ca.gov>

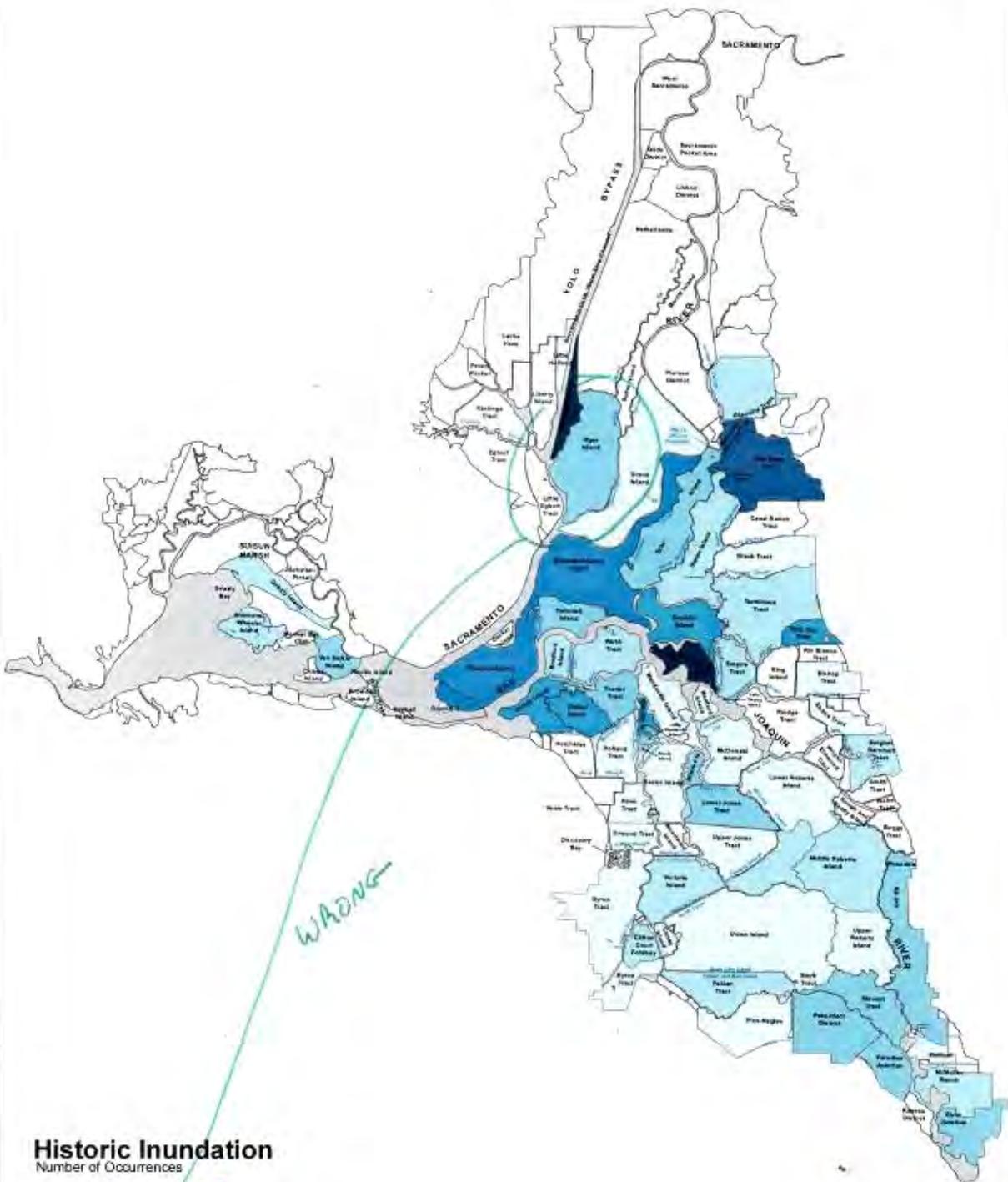
"Mike Floyd" mfloyd@water.ca.gov

Jgrinstead@usbr.gov

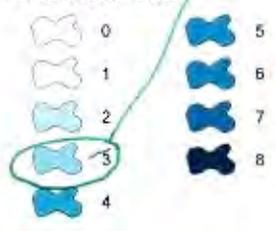
The attached maps and tables provide examples of incorrect data contained in the **Delta Risk Management Strategy (DRMS) Phase 1, Final Report**.

Wrong data was found in **Sections 4, 7, 9 and 13** regarding island inundation history. Other sections that utilize the incorrect island data to calculate other risk factors may also be incorrect due to use of false base data.

Examples compiled and submitted to DWR various agencies, 2008 through November 2009; as of 11-19-09 corrections have not been made although DWR acknowledged the incorrect data.



Historic Inundation
Number of Occurrences



0 2.5 5 10 Miles

	DRMS	Historic Island Breaches in the Delta and Suisun Marsh Since 1900	Figure 7-19
	26815431		

Table 7-9b Chronologic List of Flooded Islands Since 1900

Island Flooded	Year	Island Flooded	Year
TERMINOUS	1907	HOLLAND	1980
CLIFTONCOURT	1907	LITTLE MANDEVILLE	1980
SARGENT BARNHART	1907	LOWER JONES	1980
STATEN	1907	WEBB	1980
VICTORIA	1907	DEAD HORSE	1980
FRANKS	1907	PROSPECT	1980
RYER	1907	LITTLE FRANKS	1981
TWITCHELL	1907	PROSPECT	1981
TYLER	1907	LITTLE FRANKS	1982
BETHEL	1907	MC DONALD	1982
BRANNAN-ANDRUS	1907	VENICE	1982
BOULDIN	1907	EDGERLY	1983
JERSEY	1907	SHIMA (2)	1983
NEW HOPE	1907	FAY	1983
VENICE	1907	GRIZZLY WEST	1983
BETHEL	1908	BRADFORD	1983
BOULDIN	1908	VAN SICKLE (2)	1983
BRANNAN-ANDRUS	1909	LITTLE FRANKS (U)	1983
BETHEL	1909	MILDRED (U)	1983
BOULDIN	1909	VAN SICKLE	1983
SHERMAN	1909	PROSPECT (2)	1983
VENICE	1909	RIVER JUNCTION	1983
MOSSDALE RD17	1911	GLANVILLE	1986
BETHEL	1911	RYER	1986
MIDDLE ROBERTS	1920	SHIN KEE	1986
PARADISE JUNCTION	1920	DEAD HORSE (2)	1986
RD 1007	1925	LITTLE MANDEVILLE	1986
BIG BREAK	1927	PROSPECT	1986
NEW HOPE	1928	MC CORMACK-WILLIA (2)	1986
VENICE	1932	NEW HOPE	1986
MEDFORD	1936	TYLER (2)	1986
FRANKS	1936	LITTLE MANDEVILLE (U)	1994

WRONG

Table 7-9a Islands/Tracts Flooded Since 1900

	Location		Years	No. Of Failures
1	Bacon	Island	1938	1
2	Big Break	Island	1927	1
3	Bishop	Tract	1904	1
4	Brack	Tract	1904	1
5	Byron	Tract	1907	1
6	Coney	Island	1907	1
7	Donlon	Island	1937	1
8	Edgerly	Island	1983	1
9	Grand	Island	1955	1
10	Holland	Tract	1980	1
11	Little Holland	Tract	1963	1
12	Lower Roberts	Island	1906	1
13	Mandeville	Island	1938	1
14	Mc Donald	Island	1982	1
15	Medford	Island	1936	1
16	Palm	Tract	1907	1
17	Rd 1007	Tract	1925	1
18	Shima	Tract	1983	1
19	Union	Island	1906	1
20	Upper Jones	Tract	2004	1
21	Upper Roberts	Tract	1950	1
22	Walthall	Tract	1997	1
23	Wetherbee	Lake	1997	1
24	Bradford	Island	1950-1983	2
25	Cliftoncourt	Tract	1901-1907	2
26	Empire	Tract	1950-1955	2
27	Fabian	Tract	1901-1906	2
28	Fay	Island	1983-2006	2
29	Glanville	Island	1986-1997	2
30	Ida	Island	1950-1955	2
31	McMullin Ranch	Tract	1997-1950	2
32	Middle Roberts	Island	1920-1938	2
33	Rhode	Island	1938-1971	2
34	Sargent Barnhart	Tract	1904-1907	2
35	Staten	Island	1904-1907	2
36	Terminus	Tract	1907-1958	2
37	Victoria	Island	1901-1907	2
38	Webb	Tract	1950-1980	2
39	Little Mandeville	Island	1980-1986-1994	3
40	Ryer	Island	1904-1907-1986	3
41	Franks	Tract	1907-1936-1938	3

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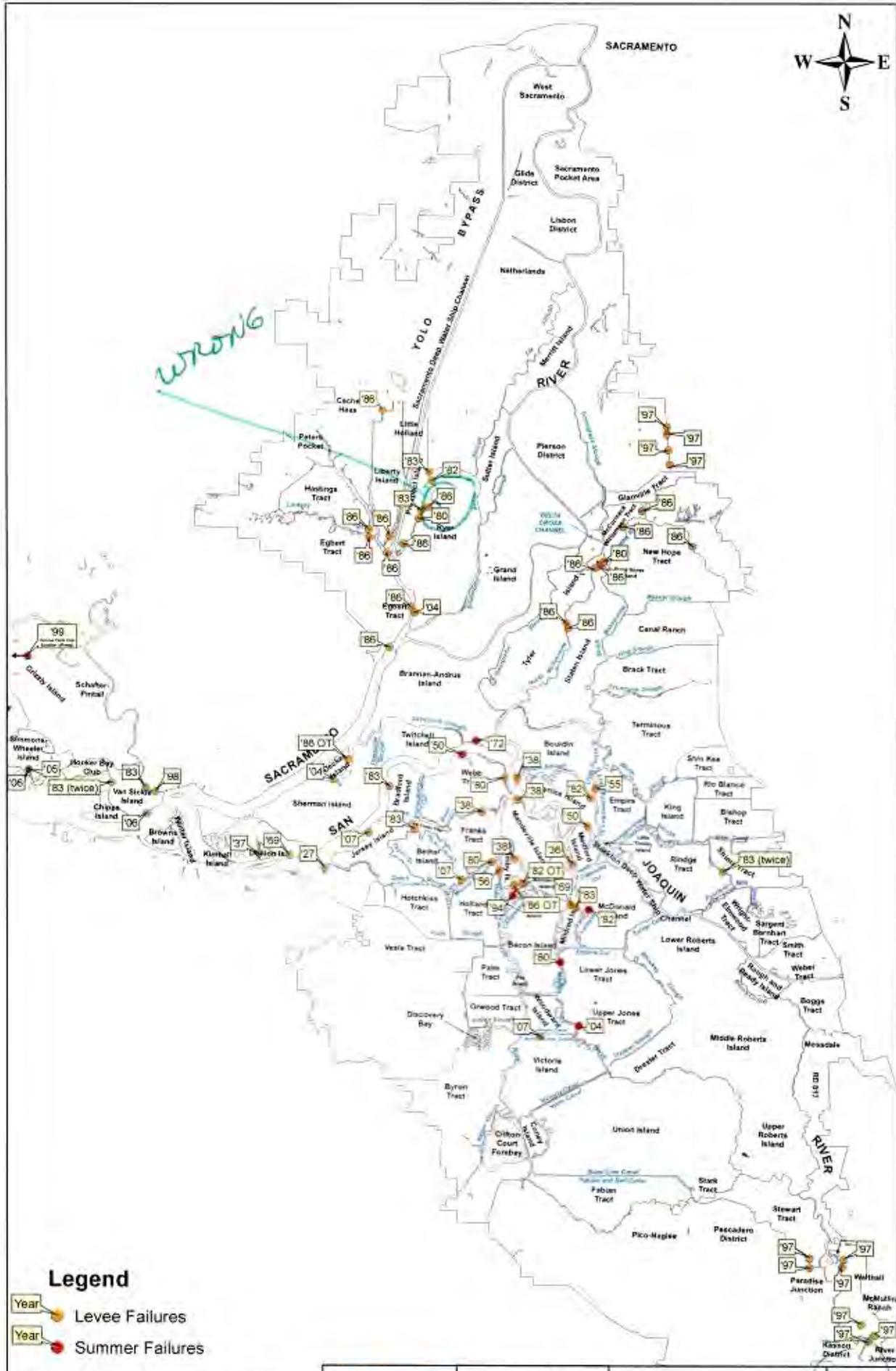
WRONG

<



SACRAMENTO

WRONG



Legend

-  Levee Failures
-  Summer Failures

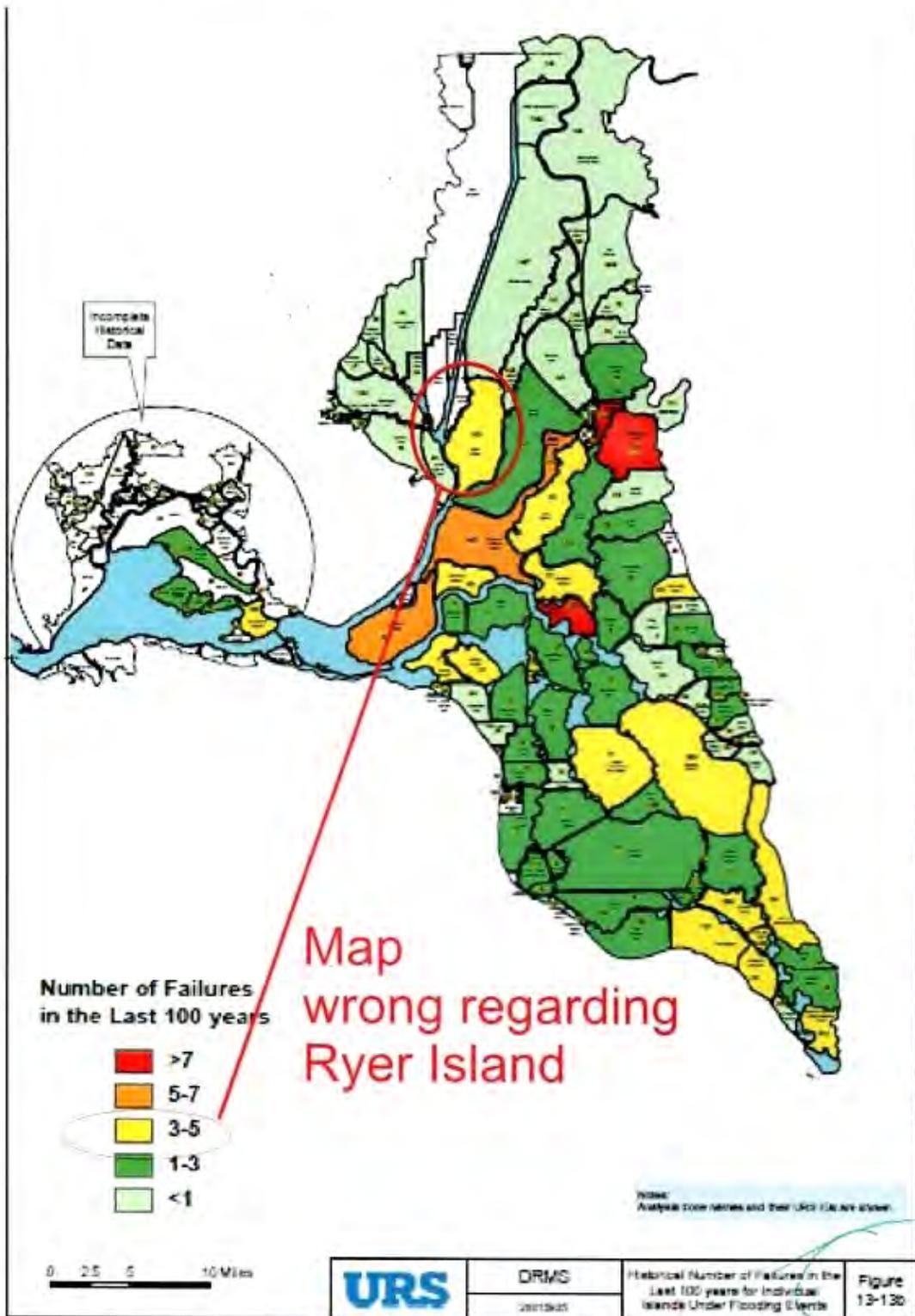
0 2.5 5 10 Miles

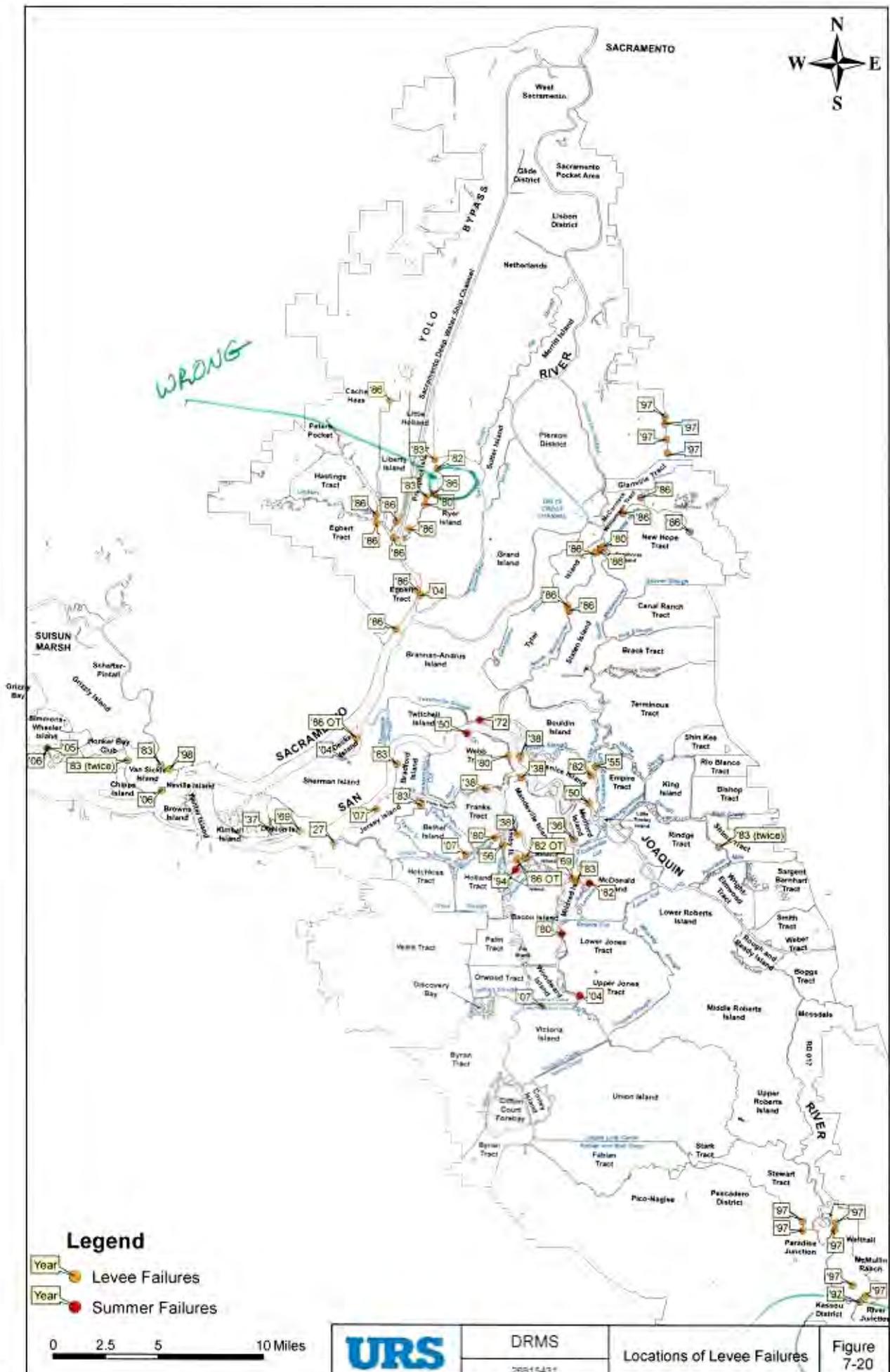
	DRMS	Locations of Levee Failures	Figure 9-2
	26915431		

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From DWR Risk report, section 13:

If correct data had been used, Ryer Island would be in dark green category or light green instead of the yellowish-green color. Note that per DWR levee improvements, Ryer Island was not improved until AFTER the 1904 and 1907 floods, so the CORRECT inundation figure for Ryer Island should be "0".



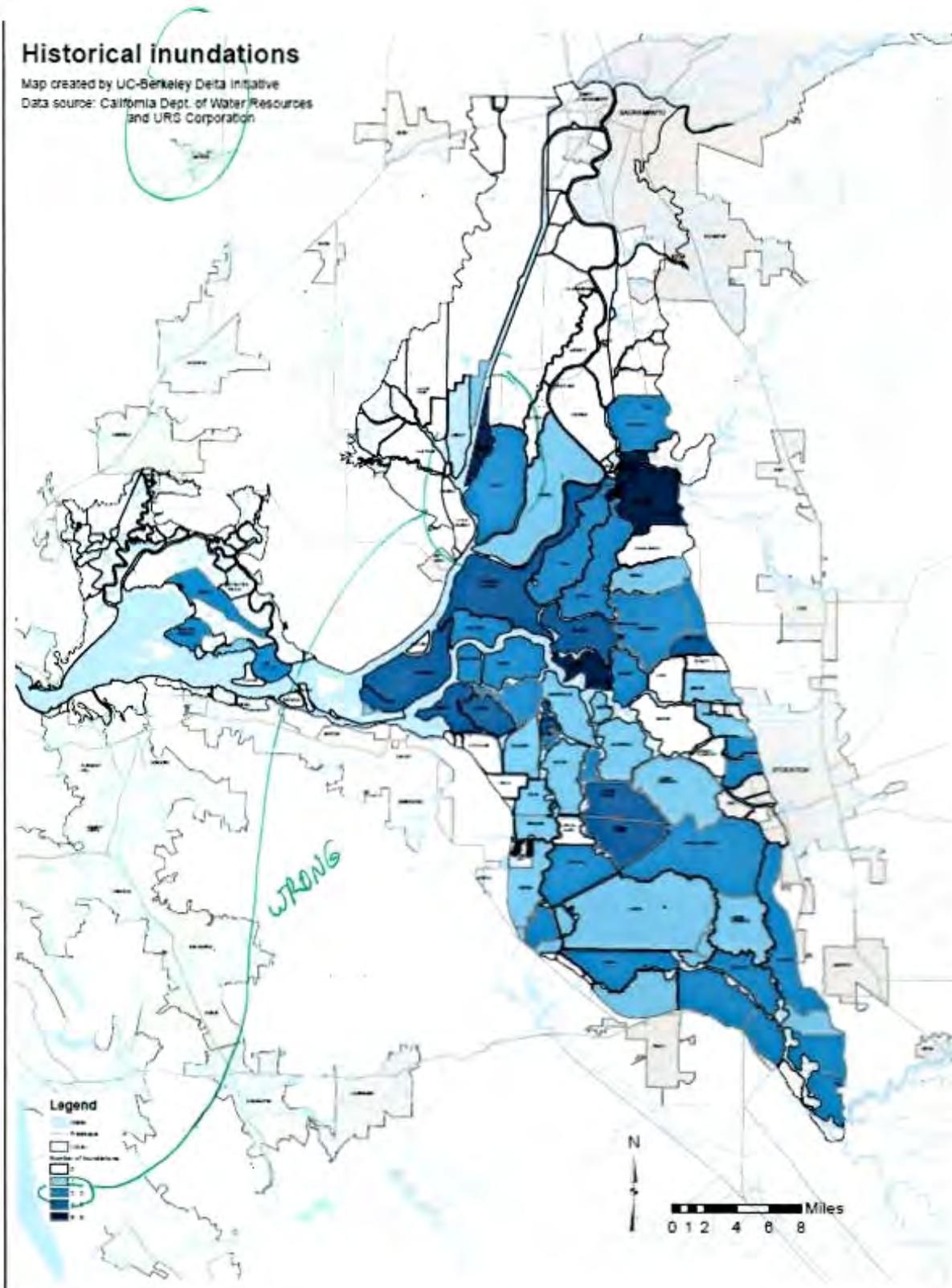


URS	DRMS	Locations of Levee Failures	Figure 7-20
	25515431		

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This is an example of a map generated by URS in 2006, which still shows online. DWR historical flood tables then start being generated, using "3" for Ryer Island.



Proof DRMS is wrong as to Ryer Island, and therefore also wrong regarding any calculations that utilized incorrect island inundation numbers:

Ryer Island has not flooded since the current levee was constructed. However, DRMS incorrectly listed Ryer Island as flooding "3-5 times in last 100 years", using 2005 as the study base year. Ryer Island flood, inundation or failure historical data should say "0" or if DWR insists on counting inundation records from *before* the levees were even built, then for Ryer Island the number would be "1" as the non-leveed island history indicates flooding in 1907. Therefore, since the underlying data used to calculate probability of failure is incorrect, the resulting calculations are also incorrect, and the summary of the calculations of all Delta islands statistical probability of failure is also incorrect.

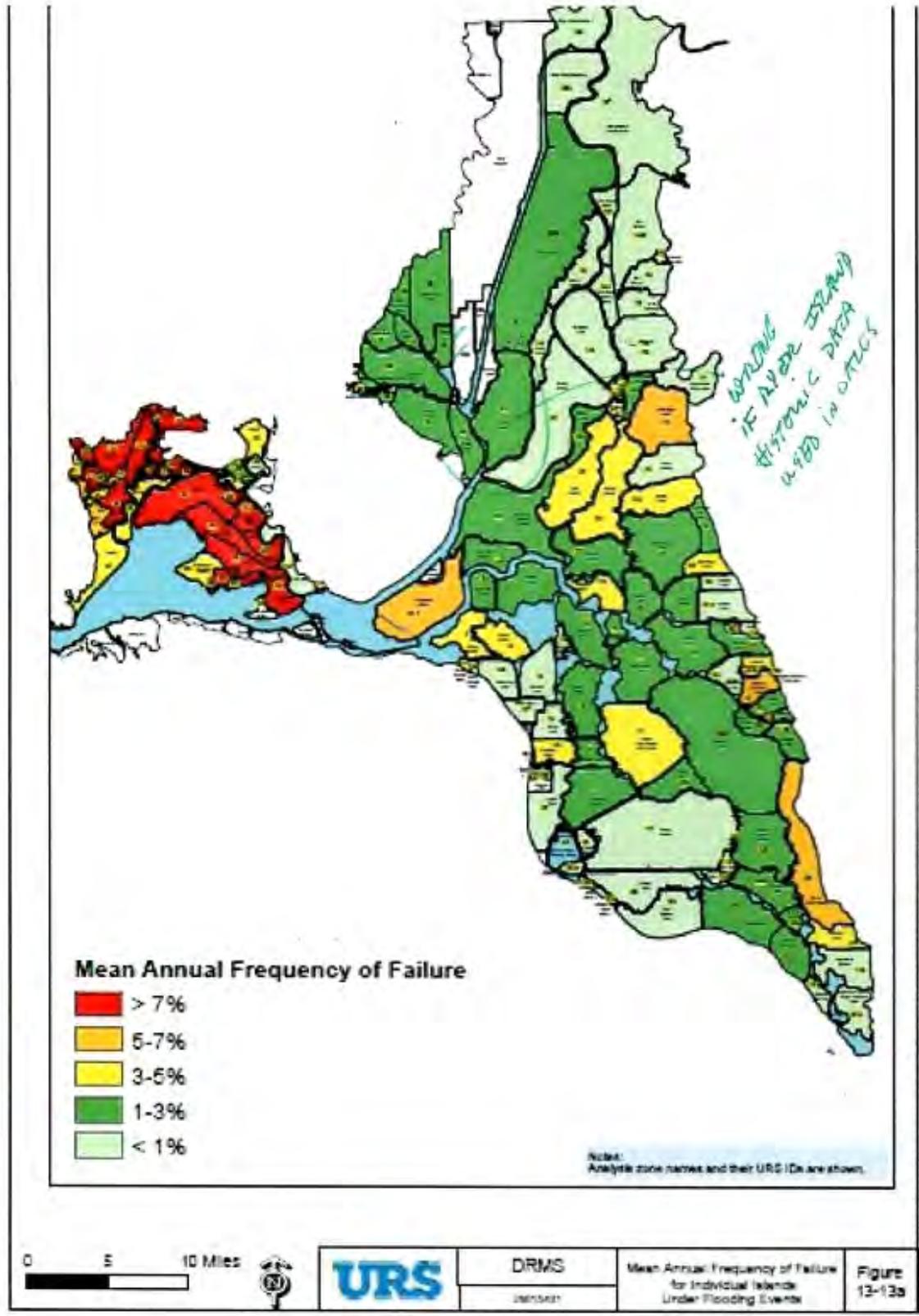
Notice of use of incorrect Ryer Island historical data was provided to DWR/DV representative scientists in August, September and November 2008. During 2009 many different governmental representatives from DWR, DV, BDCP and Solano County were also advised of the incorrect data. In October 2009 DWR acknowledged the incorrect data regarding Ryer Island and agreed to make corrections and notify persons/agencies using DRMS data so that subsequent reports would not be wrong. As of mid-November, 2009, the correction still does not show online. Below are sections of DRMS at the link as shown:

 http://www.water.ca.gov/floodmgmt/dsmo/sab/dmsp/docs/Risk_Report_Section_13_Final.pdf

Table 13-8 Delta and Suisun Marsh Individual Island Composite Rates of Failures

URS_ID	URS Name	Annual Mean No. of Failures	Probability of Failure in 25 years	Probability of Failure in 50 years	Probability of Failure in 100 years
143	Rindge Tract	1.38E-02	29%	50%	75%
187	Shima Tract	1.38E-02	29%	50%	75%
7	King Island	1.38E-02	29%	50%	75%
19	Woodward Island	1.38E-02	29%	50%	75%
1002	Drexler Tract	1.32E-02	28%	48%	73%
1003	Roberts Island	1.32E-02	28%	48%	73%
115	Upper Roberts Island	1.32E-02	28%	48%	73%
169	McCormack Williamson Tract	1.31E-02	28%	48%	73%
210	Ryer Island	1.30E-02	28%	48%	73%
6	Bradford Island	1.08E-02	24%	42%	66%
86	Terminus Tract East	1.06E-02	23%	41%	65%
159	Boggs Tract	1.04E-02	23%	41%	65%
171	Cosumnes River Area	1.00E-02	22%	39%	63%
32	Coney Island	9.63E-03	21%	38%	62%
13	Holland Tract	9.07E-03	20%	36%	60%
141	Merritt Island	8.98E-03	20%	36%	59%
120	McMullin Ranch	8.90E-03	20%	36%	59%
147	Grand Island	7.39E-03	17%	31%	52%
14	Dutch Slough West	7.12E-03	16%	30%	51%
77	Elk Grove South East	6.46E-03	15%	28%	48%
175	Canal Ranch	6.46E-03	15%	28%	48%
170	Glanville Tract	6.46E-03	15%	28%	48%
173	Deadhorse Island	6.46E-03	15%	28%	48%
TOTAL DELTA		1.41E+00	100.00%	100.00%	100.00%
TOTAL CACHE SLOUGH AREA		2.67E-01	99.87%	100.00%	100.00%
TOTAL SUISUN MARSH		8.71E+00	100.00%	100.00%	100.00%

Mean annual frequency of failure uses the incorrect Ryer Island inundation history to calculate the probability of failure, as reflected on this map. Probability of failure should be <1% or light green.



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Table B.1 - Summary of Annual Failure Probabilities for Delta Islands

Zone	NAME	Flood	Seismic	Flood + Seismic	Flood PL 84-99	PL 84-99 Flood + Seismic	PL 84-99 + 1' Raise Flood	PL 84-99 + 1' Raise Flood + Seismic
Central	Bacon Island	0.04	0.02	0.06	0.04	0.06	0.03	0.05
Central	Bouldin Island	0.06	0.03	0.09	0.05	0.08	0.05	0.08
Central	Empire Tract	0.04	0.02	0.06	0.04	0.06	0.03	0.05
Central	Mandeville Is.	0.04	0.03	0.07	0.04	0.06	0.03	0.06
Central	McDonald	0.02	0.03	0.05	0.02	0.05	0.02	0.05
Central	Medford Is.	0.03	0.02	0.05	0.03	0.05	0.02	0.04
Central	Quimby Island	0.04	0.03	0.07	0.04	0.06	0.03	0.06
Central	Rindge Tract	0.01	0.02	0.03	0.01	0.03	0.01	0.03
Central	Venice Island	0.07	0.04	0.11	0.06	0.10	0.06	0.09
Eastern	King Island	0.01	0.01	0.02	0.01	0.02	0.01	0.02
Eastern	Terminus	0.04	0.01	0.05	0.04	0.05	0.03	0.04
Eastern	Wright-Elmwood	0.01	0.01	0.02	0.01	0.02	0.01	0.02
Northern	Brack Tract	0.04	0.01	0.05	0.04	0.05	0.03	0.04
Northern	Canal Ranch	0.04	0.02	0.06	0.04	0.06	0.03	0.05
Northern	Dead Horse	0.03	0.01	0.04	0.03	0.04	0.02	0.03
Northern	Grand Island	0.02	0.05	0.07	0.02	0.07	0.02	0.07
Northern	Bethel Island	0.04	0.04	0.08	0.04	0.07	0.03	0.07
Northern	Ryer Island	0.02	0.03	0.05	0.02	0.05	0.02	0.05
Northern	Staten Island	0.04	0.03	0.07	0.04	0.06	0.03	0.06
Northern	Tyler Island	0.04	0.05	0.09	0.04	0.08	0.03	0.08
Southern	Coney Island	0.02	0.02	0.04	0.02	0.04	0.02	0.04
Southern	Jones Tract	0.05	0.03	0.08	0.05	0.07	0.04	0.07
Southern	Orwood Tract	0.03	0.01	0.04	0.03	0.04	0.02	0.04
Southern	Palm Tract	0.05	0.03	0.08	0.05	0.07	0.04	0.07
Southern	Roberts Island	0.03	0.03	0.06	0.03	0.06	0.02	0.05
Southern	Union Island	0.01	0.03	0.04	0.01	0.04	0.01	0.04
Southern	Victoria Island	0.03	0.03	0.06	0.03	0.06	0.02	0.05
Southern	Woodward	0.01	0.03	0.04	0.01	0.04	0.01	0.04
Western	Bradford Is.	0.04	0.05	0.09	0.04	0.08	0.03	0.08
Western	Brannan-Andrus Is.	0.03	0.05	0.08	0.03	0.08	0.02	0.07
Western	Holland Tract	0.05	0.03	0.08	0.05	0.07	0.04	0.07
Western	Hotchkiss	0.01	0.03	0.04	0.01	0.04	0.01	0.04
Western	Jersey Island	0.05	0.05	0.10	0.05	0.09	0.04	0.09
Western	Sherman Is.	0.02	0.05	0.07	0.02	0.07	0.02	0.07
Western	Twitchell Is.	0.03	0.05	0.08	0.03	0.08	0.02	0.07
Western	Webb Tract	0.05	0.05	0.10	0.05	0.09	0.04	0.09

* Which Ryer Island?

↓ USE OF DRAG DATA

Source: Author calculations, using data from Draft DRMS Phase 1 Risk Analysis (J.R. Benjamin and Associates, 2007).

Notes: "PL 84-99" denotes scenarios in which levees are upgraded to meet the higher federal levee

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TO: Tara Smith
FROM: Michael Mierzwa
DATE: August 26, 2001
RE: Delta Wetlands Preliminary DSM2 Studies

1. Introduction

Delta Wetlands proposes to convert two Delta islands, Bacon Island and Webb Tract, into reservoirs. Both islands would be used to store water during surplus flow periods. Later this water would be released for export enhancement or to meet Delta flow/water quality requirements.

This study uses the DWRSIM 771 existing condition hydrology as the input for a series of DSM2-HYDRO and QUAL 16-year planning studies. This study ran from 1975 – 1991. This hydrology was used by Jones and Stokes in their analysis for Delta Wetlands and is the basis of the Delta Wetlands Environmental Impact Report (EIR). This study is based on the most recent version of the DSM2 geometry, and also makes use of QUAL's ability to model multiple water quality constituents. In addition to the traditional EC modeling, QUAL was used to simulate dissolved organic carbon (DOC) and ultraviolet absorbance at 254 nm (UVA) impacts due to the operation of the two island reservoirs.

This report includes the descriptions of the two scenarios (a base case and an alternative based on the Delta Wetlands project) and the results of these DSM2 simulations at M&I locations. The operation (flow into and out of the island reservoirs) was provided by David Forkel of Delta Wetlands (2001a). The physical specification for the Delta Wetland islands is based on the Delta Wetlands EIR. A brief discussion of the DWR-Municipal Water Quality Investigations (MWQI) data that were used as the boundary conditions for the QUAL DOC and UVA simulations is also provided.

2. Description of Scenarios

The two different scenarios were based on the DWRSIM 771 existing condition hydrology. The base case simulated the Delta without the operations of the proposed Delta Wetlands project. The Delta Wetlands alternative included the proposed operations of Bacon Island and Webb Tract, but did not account for the changes in land use of the two proposed habitat islands. Brief summaries of both scenarios are described below in Table 1, followed by more detailed descriptions of these assumptions.

Table 1: Summary of Planning Scenarios.

	<i>Base: No Action</i>	<i>Alternative: Delta Wetlands Operations</i>
Project Islands	No.	Yes. (Bacon Island and Webb Tract.)
Habitat Islands	No.	No.
Boundary Flows	DWRSIM 771.	DWRSIM 771.
Boundary Stage	25-hour Repeating Tide.	25-hour Repeating Tide.
Martinez EC	ANN w/ Net Delta Outflow.	ANN w/ modified Net Delta Outflow.
Rim Boundary EC	DWRSIM 771.	DWRSIM 771.
Island Diversions	Historical DICU.	Modified DICU.
Island Return Flows	Historical DICU.	Modified DICU.
Island Seepage	Historical DICU.	Historical DICU.
Martinez Boundary DOC / UVA	N/A	N/A
Rim Boundary DOC / UVA	MWQI data.	MWQI data.
Island EC	Historical DICU.	Historical DICU. DSM2 mixed and stored EC in Project reservoirs.
Island DOC / UVA	MWQI data.	MWQI data. Three bookend measurements for Project reservoirs.

2.1. No Action (Base Case):

The DWRSIM 771 existing conditions study was used to provide the rim boundary flows and exports. Gate and barrier configurations were designed to account for the proposed operation schedule for the South Delta Permanent Barriers (which include Old River at Head, Old River at Tracy, Middle River, and Grant Line Canal). The Suisun Marsh Salinity Control Gate and Clifton Court Forebay Gates were both operated according to previous DSM2 planning studies that used the DWRSIM 771 existing conditions study as a base case.

Historical DSM2 Delta Island Consumptive Use (DICU) data were used for all the HYDRO simulations and the QUAL EC simulation. Martinez EC data were generated using an artificial neural network (ANN) and Net Delta Outflow. DWR-MWQI observations were used to create synthetic time series for DOC and UVA (see Section 3.6) at the following rim boundaries: San Joaquin River, Sacramento River, and the Eastside streams. The flux of DOC and UVA from the downstream boundary at Martinez (the sea) was considered insignificant. Details on the development of agricultural return DOC and UVA data for DSM2 based on the MWQI observations is described in the report *Revision of Representative Delta Island Return Flow Quality for DSM2 and DICU Model Runs* (Dec. 2000) as prepared by Marvin Jung and Associates, Inc.

2.2. Delta Wetlands Operation (Alternative 1):

Jones and Stokes used the DWRSIM 771 existing conditions study to create a preliminary schedule of diversions into and releases out of the two proposed Delta Wetlands islands. This schedule did not separate the storage, diversions, and releases

between the two islands; however, a simple operating rule was proposed to govern the independent operation of the islands. This proposed set of rules is listed below in Table 2.

Table 2: Proposed Rules of Operation.

Filling (Diversion to Islands)	Fill Bacon Island first, then fill Webb Tract.
Emptying (Releases from Islands)	Empty Bacon Island first, then empty Webb Tract.

Using the above operation rules and the target monthly storage for the project reservoirs provided by Jones and Stokes, the diversions and releases for each island as well as each pump were separated for use in DSM2-HYDRO. The result of these operation rules is that each island fills and empties at different times and for different amounts. The combined diversions for both pumps at each island are shown below in Figure 1. The releases for each island are shown below in Figure 2. The process by which these diversions and releases were calculated is further explained in Appendix A.

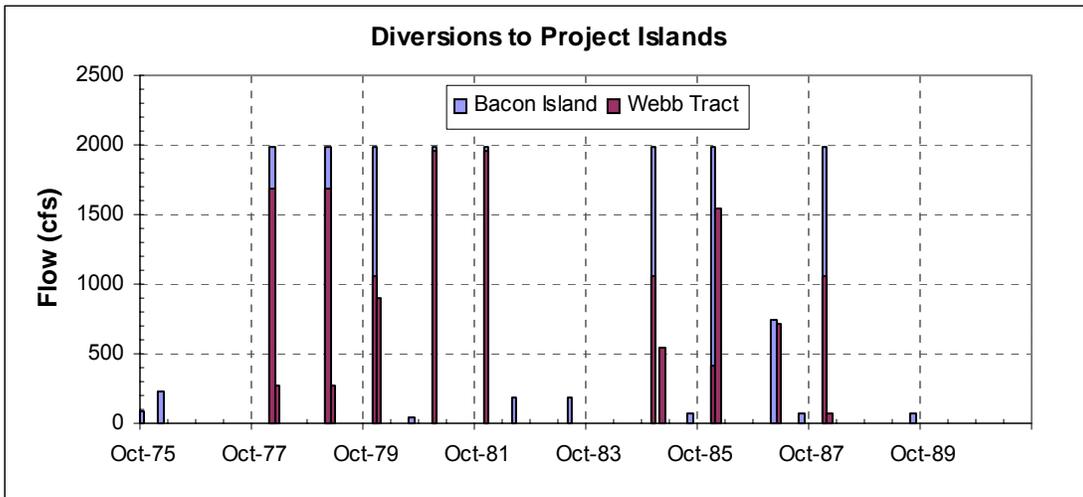


Figure 1: Diversions to Delta Wetlands.

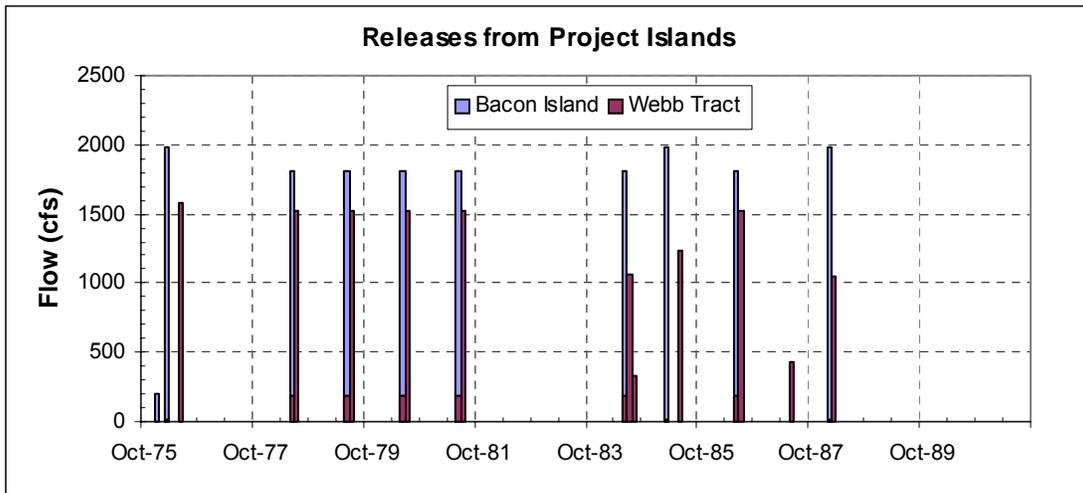


Figure 2: Releases from Delta Wetlands.

The configuration of the project islands as modeled by DSM2 is listed in Table 3. The storage capacity, discharge location, and both intake locations for the project islands determined from the Delta Wetlands EIR.¹ The locations are shown in Figures 3 and 4. According to the operations EIR schedule, water was typically diverted into the islands in the winter on the northern ends of the islands and released back into the Delta in the summer on the southern ends of the islands.

Table 3: DSM2 configuration of Delta Wetlands project islands.

<i>Island</i>	<i>Storage Capacity (TAF)</i>	<i>Discharge Location (Node)</i>	<i>Intake Location #1 (Node)</i>	<i>Intake Location #2 (Node)</i>
Bacon Island	120	213	98	128
Webb Tract	118	224	40	103

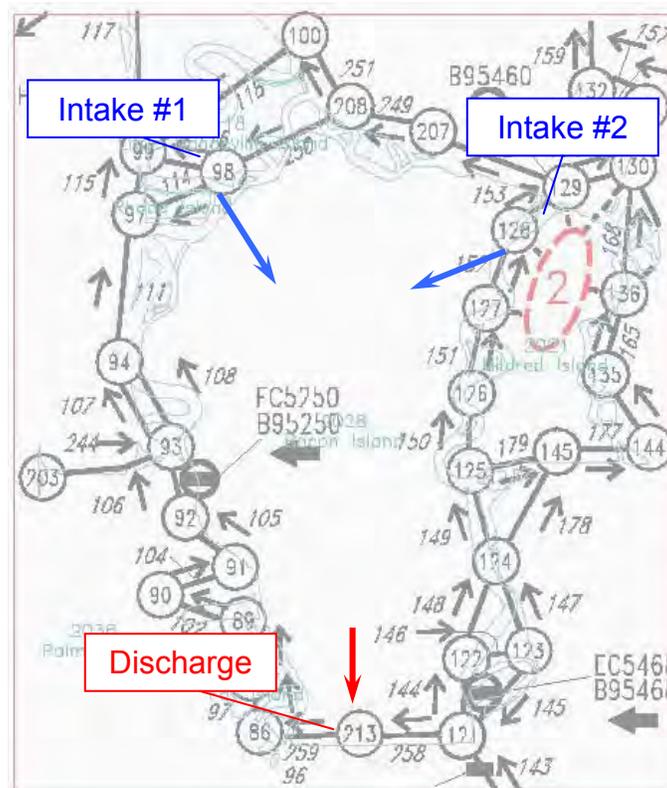


Figure 3: DSM2 Representation of Bacon Island.

¹ The Bacon Island discharge location (node 213) is based on a location determined from a draft EIR from early 2000. This location has been moved to the Middle River in the current EIR. By moving the Bacon Island discharge location away from the Old River, it is expected that the water quality impacts from Bacon Island releases will be reduced at both the Contra Costa Old River and Los Vaqueros intakes. Future DSM2 studies will model the Bacon Island location at a point consistent with the current EIR.

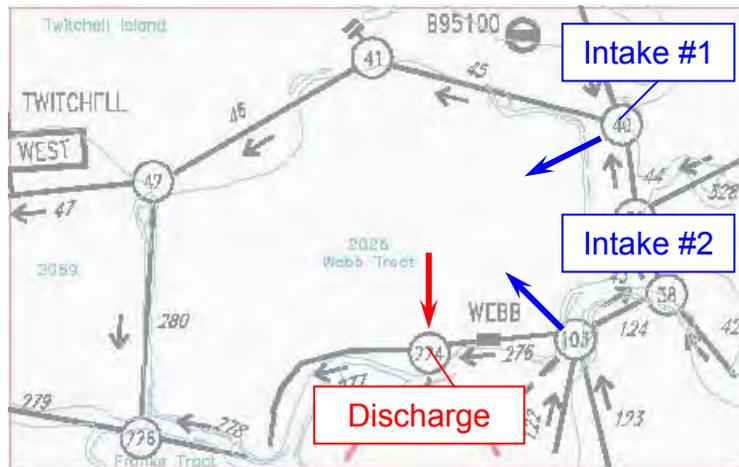


Figure 4: DSM2 Representation of Webb Tract.

The volume of water stored in each island reservoir is a direct function of the amount of water diverted into or released from each island. Volume of a reservoir in DSM2 is the product of the reservoir’s surface area and its current stage level. The project island reservoirs were isolated from the Delta channels, thus there was no limit to the stage in either reservoir. In order to prevent drying up of the island reservoirs 5 ft of water was assumed to be present on both islands at the beginning of the simulation.² This water was considered dead storage and was never released into the Delta. Although the initial concentration of this dead storage is 0 umhos/cm, inchannel water was diverted into Bacon Island and later released several times during the DSM2 spin-up period in 1974 and 1975. Through this activity the dead storage EC concentration in Bacon Island was 161 umhos/cm at the start of the DSM2 simulation.

Water quality from the two Delta Wetland island reservoirs was modeled two different ways using DSM2. These two different approaches are described below.

For the QUAL EC simulations the reservoirs were isolated from the Delta channels as described above and flow between the surrounding channels and the project islands were regulated in DSM2 by a direct “object-to-object” transfer. When water was diverted into the islands, this object-to-object transfer moved water from both of the intake nodes for the islands being filled into the reservoir. This process was reversed in accordance with the release schedule except that water was then discharged at the discharge locations listed in Table 3.

This process allowed QUAL to automatically mix incoming EC concentrations from the nearby channels with the EC already present in the reservoirs; thus the water released from the reservoirs would better represent the mixed water quality of the water stored in the reservoirs. The EC concentrations of the island reservoirs only changed when new

² The choice of 5 ft of depth was chosen as a preliminary starting depth in the EC simulations in order to prevent DSM2 from drying up. DSM2 does not support the wetting and drying of channels or reservoirs. Future DSM2 studies will use a smaller depth for the reservoir dead storage.

water was transferred into the islands, not when water exited the islands. This process is described in greater detail in Section 4.1.

For the QUAL DOC and UVA simulations, these preliminary studies were designed to investigate the impact of different DOC and UVA “bookend” measurements. Instead of using active reservoirs, diversions to the islands were treated as sinks located at the two intake nodes for each island and the releases from the islands were treated as sources located at the discharge locations. Water released back into the Delta through the discharge nodes was given a fixed DOC or UVA concentration depending upon the scenario. A list of DOC and UVA values for both islands is listed below in Table 4.

Table 4: Summary of DOC and UVA Delta Wetlands Operations Values.

<i>Bookend Simulation</i>	<i>DOC (mg/L)</i>	<i>UVA (cm⁻¹)</i>
Low	6	0.289
Middle	15	0.686
High	30	1.348

The UVA measurements were based on the DOC concentrations, using the relation developed in the *Revision of Representative Delta Island Return Flow Quality for DSM2 and DICU Model Run* report (see Equation 1).

$$UVA = 0.02374 + 0.04415 \times DOC \quad \text{[Eqn. 1]}$$

With changes in the land use of the project islands, the diversions and return flows for Bacon Island and Webb Tract were modified using the Delta Island Consumptive Use (DICU) model. DICU computes the consumptive use at each node in DSM2 based on the historical needs for each island or water habitat in the Delta. The diversions and return flows for each island are distributed to different nodes, such that the modeled diversions, return flows, and/or seepage at any one node frequently include the individual contributions from different islands. The contributions from Bacon Island and Webb Tract were removed from all of the nodes surrounding both islands (see Figures 3 and 4). DSM2 mixes return flows with fixed “drainage” water quality measurements at each node. Even though the contributions from the project islands were removed from the intake and release nodes, the diversions and return flows from the neighboring islands could mix with the measurements coming from the island reservoirs. In order to prevent DSM2 from mixing the return flows from these neighboring islands with the fixed bookend concentrations, the diversions and return flows from other islands were relocated from the intake and pump locations listed in Table 3 to nearby nodes.

Since seepage in DSM2 represents the amount of water that comes from the Delta channels to the islands, it was not modified for either scenario.

3. Simulation Inputs

3.1. Delta Cross Channel

The position of the Delta Cross Channel was predetermined by the DWRSIM 771 existing conditions study. For most years, the Delta Cross Channel was closed except during the summer months Jun. – Sep. when flow at Freeport (as modeled by DWRSIM) was less than 23,000 cfs. In some wet years, such as 1982 and 1983 the Delta Cross Channel was also closed during some of these months due to high flow conditions.

3.2. Flow

Rim flows, exports, and diversions not covered above in the description of the Delta Wetlands Operation came from the DWRSIM 771 existing conditions study. The rim flows include the Sacramento River, San Joaquin River, and the Yolo Bypass and then a combined parameter representing the eastside flows into the Delta. Exports include the State Water Project (SWP), the Central Valley Project (CVP), Vallejo diversions, North Bay Aqueduct diversions, and Contra Costa Canal diversions from Rock Slough. Contra Costa operations on the Old River for the Los Vaqueros reservoir were not available at the time this study was conducted.

The combined SWP and CVP exports are shown in Figure 5 (below) in order to provide a general feel for the amount of water that would be flowing south through the Central Delta over the study period.

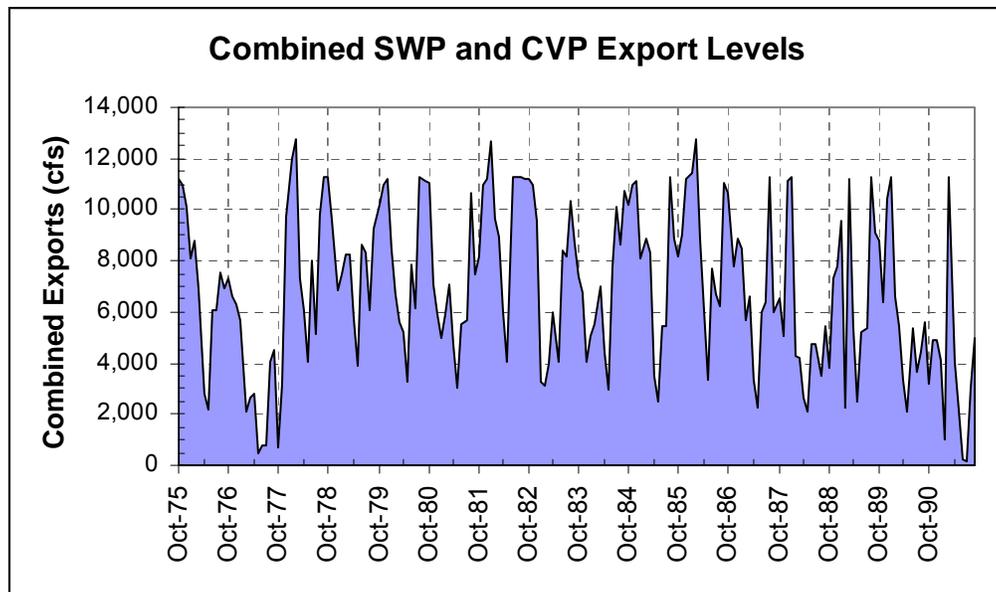


Figure 5: Combined SWP and CVP Export Levels.

3.3. Stage

A repeating tide was used as the downstream boundary condition at Martinez. This tide includes flood / ebb variations, but does not include Spring / Neap variations.

3.4. South Delta Permanent Gates

The proposed future operation of the four South Delta fish and agricultural permanent gates, Old River at Head, Old River at Tracy, Middle River, and Grant Line Canal barriers, was used in this study. When operating, the gates only allowed flow in the upstream direction. Each structure is either installed or removed during one of 13 planning periods, see Figure 6 below. Each month represents one planning period, with the exception of April, which is divided into two planning periods. This was done so the gates could be installed in the middle of the month, per the proposed future operation of the gates.

<i>Barrier</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>
Old River @ Head												
Old River @ Tracy												
Middle River												
Grant Line Canal												

Figure 6: Schedule of Permanent Barrier Operations.

3.5. Other Gates

The Suisun Marsh Salinity Control Gate was operated October through May of each year. The Clifton Court Forebay Gates were operated based on a schedule created for prior DSM2 planning runs that used the same DWRSIM 771 study as input. The Forebay Gate schedule would open the gates at different times based on one of three priorities. These priorities optimize the intake of water into the Forebay while offering increasing levels of protection to the water levels in the South Delta. A complete description of these priorities and their implementation in DSM2 can be found in *Status Report on Technical Studies for CALFED Water Management Planning* (Jul. 1999).

3.6. Quality

Water quality inputs were applied both at the external boundaries and at Delta interior locations through Delta Island Consumptive Use (DICU). The sources and nature of these data are discussed below.

3.6.1. EC

As discussed above in the description of the base case, the Martinez downstream boundary EC was generated using an ANN with Net Delta Outflow as the input. Kristof coefficients were used to convert daily EC into hourly values for use in QUAL.

The rim flow boundaries for the Sacramento River, Yolo Bypass, and eastside streams were all given fixed EC concentrations of 125, 150, and 125 umhos/cm respectively.

Standard DICU data developed from DWR Delta Modeling’s DICU model were used to represent the quality of water draining off the Delta islands. For the base case all of the

standard DICU node locations were used. For the alternate scenario some of the nodes surrounding Bacon Island and Webb Tract were modified (see section 2.2 for a detailed description of how this was done) in order to account for the change in use of these two islands.

3.6.2. DOC

Based on monthly dissolved organic carbon observations from DWR MWQI, time series of monthly average DOC were created for the Sacramento River, San Joaquin River, and eastside streams (see Figure 7). The Sacramento River data were based on Green’s Landing observations. Vernalis observations were used for the San Joaquin River data. The eastside stream data were based on American River observations. These three time series were applied as the boundary conditions. It was assumed that the amount of DOC at the downstream Martinez boundary was negligible.

Bookend values were used to represent the DOC coming off the project islands. Table 5 (located above) summarizes these bookends.

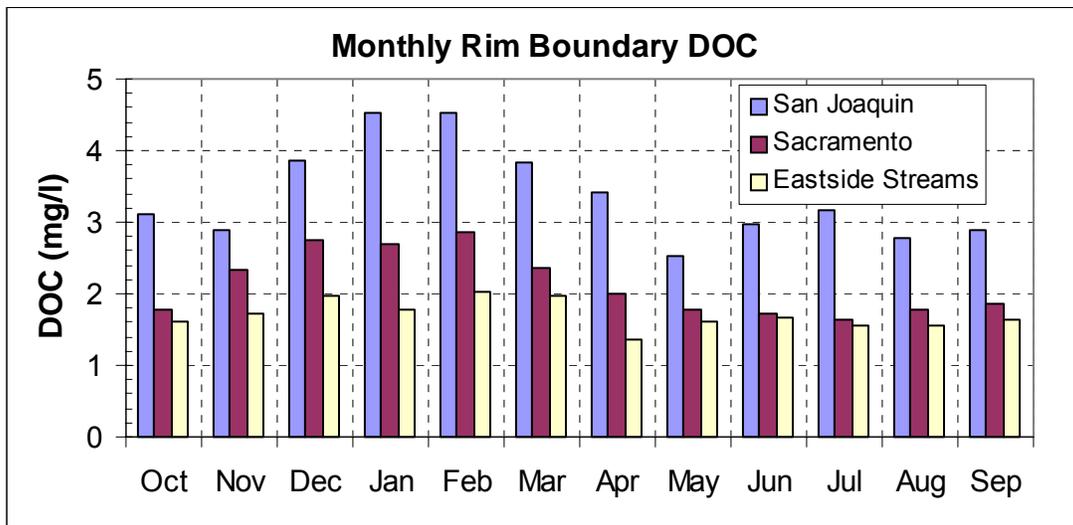


Figure 7: Monthly Averaged DOC Boundary Conditions.

DICU data developed as part of the DWR MWQI studies were used to represent the DOC (mg/l) draining off the Delta islands (see Jung, 2000). Three different ranges of DOC returns were used in the DOC DICU data. Figure 8 represents the DOC values as modeled in DSM2 for the three different ranges. As illustrated in Figure 8, high range DOC is associated with DOC releases that peak out above 30 mg/l. Similarly, the low range DOC is used for islands that were found to have low DOC releases. For the base case, all of the historic DICU agricultural diversions and return flows were used. Some of the agricultural diversions and return flows in the alternate scenario were modified as described in Section 2.2.

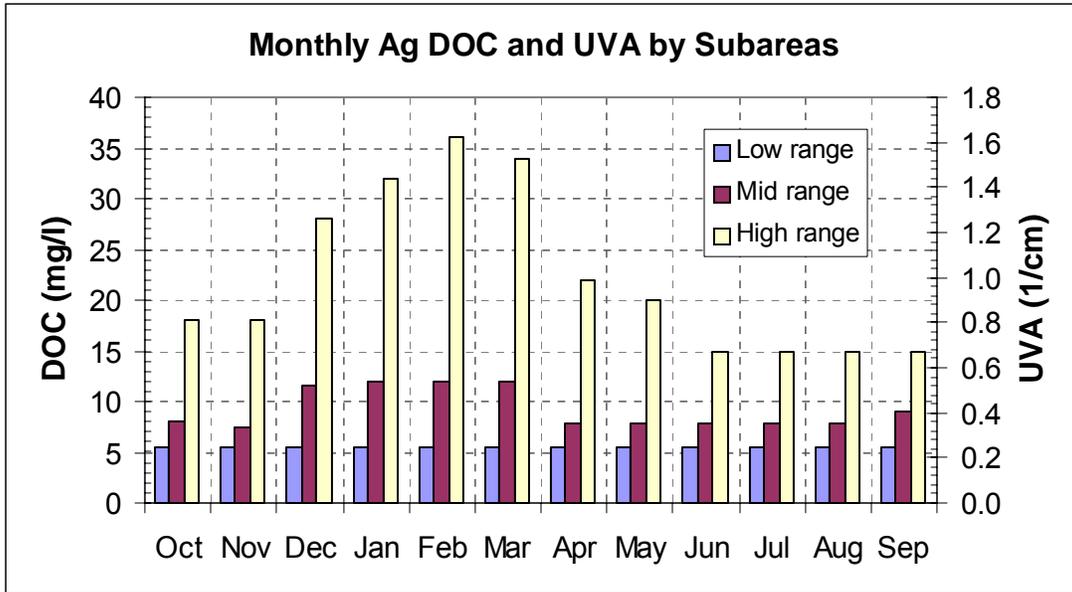


Figure 8: Monthly Averaged DOC and UVA from Agricultural Returns.

3.6.3. UVA

Based on monthly UVA-254 observations from DWR MWQI, time series of monthly average UVA were created for the Sacramento River, San Joaquin River, and eastside streams (see Figure 9). These three time series were applied as the boundary conditions. Again, the UVA-254 value at the downstream Martinez boundary was considered negligible.

Bookend values were used to represent the UVA coming off the project islands. Table 5 (located above) summarizes these bookends. These bookends were calculated using the relationship (Equation 1) described in Section 2.2 developed by Jung.

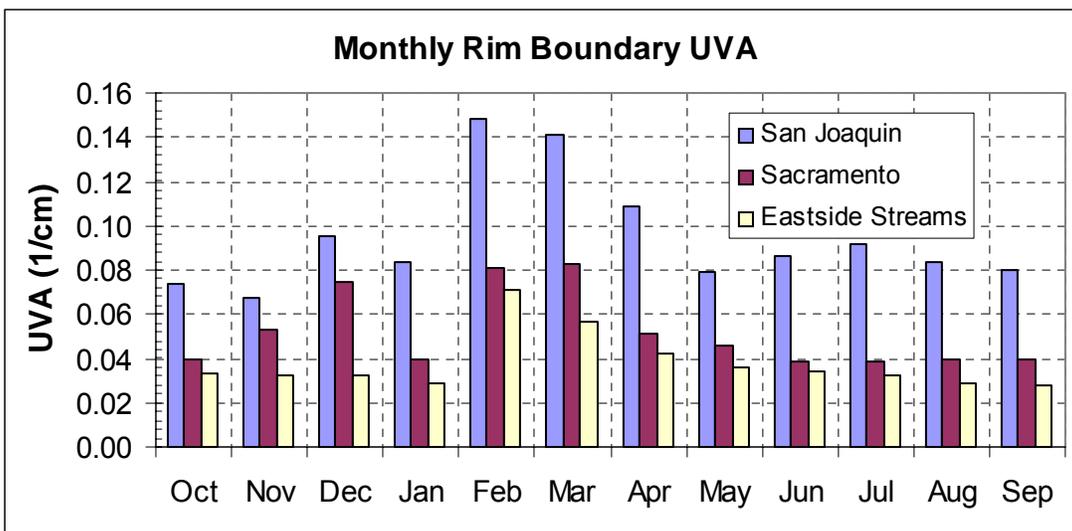


Figure 9: Monthly Averaged UVA Boundary Conditions.

DICU data developed as part of the DWR MWQI studies were used to represent the water quality draining off the Delta islands (see Jung, 2000). Three different ranges of UVA returns were used in the UVA DICU data. The values of these ranges are illustrated in Figure 8. The values were calculated by converting DOC to UVA using Equation 1. For the base case, all of the standard DICU agricultural diversions and return flows were used. Some of the agricultural diversions and return flows in the alternate scenario were modified as described in Section 2.2.

3.6.4. Initial Conditions (Cold Start)

DSM2 planning studies cover a 16-year period from Oct. 1975 to Sep. 1991. Unlike HYDRO, QUAL requires a much longer start-up period. In the case of planning studies, no assumption is made about the initial water quality conditions in the Delta; thus an extra year is run in order to simulate the mixing of the delta. This is called a cold start routine. Both HYDRO and QUAL are run for this extra year, but the results are disregarded during this cold start period.

4. Results

This report discusses three water quality constituents, electrical conductivity (EC), dissolved organic carbons (DOC), and ultraviolet absorbance at 254 nm (UVA).

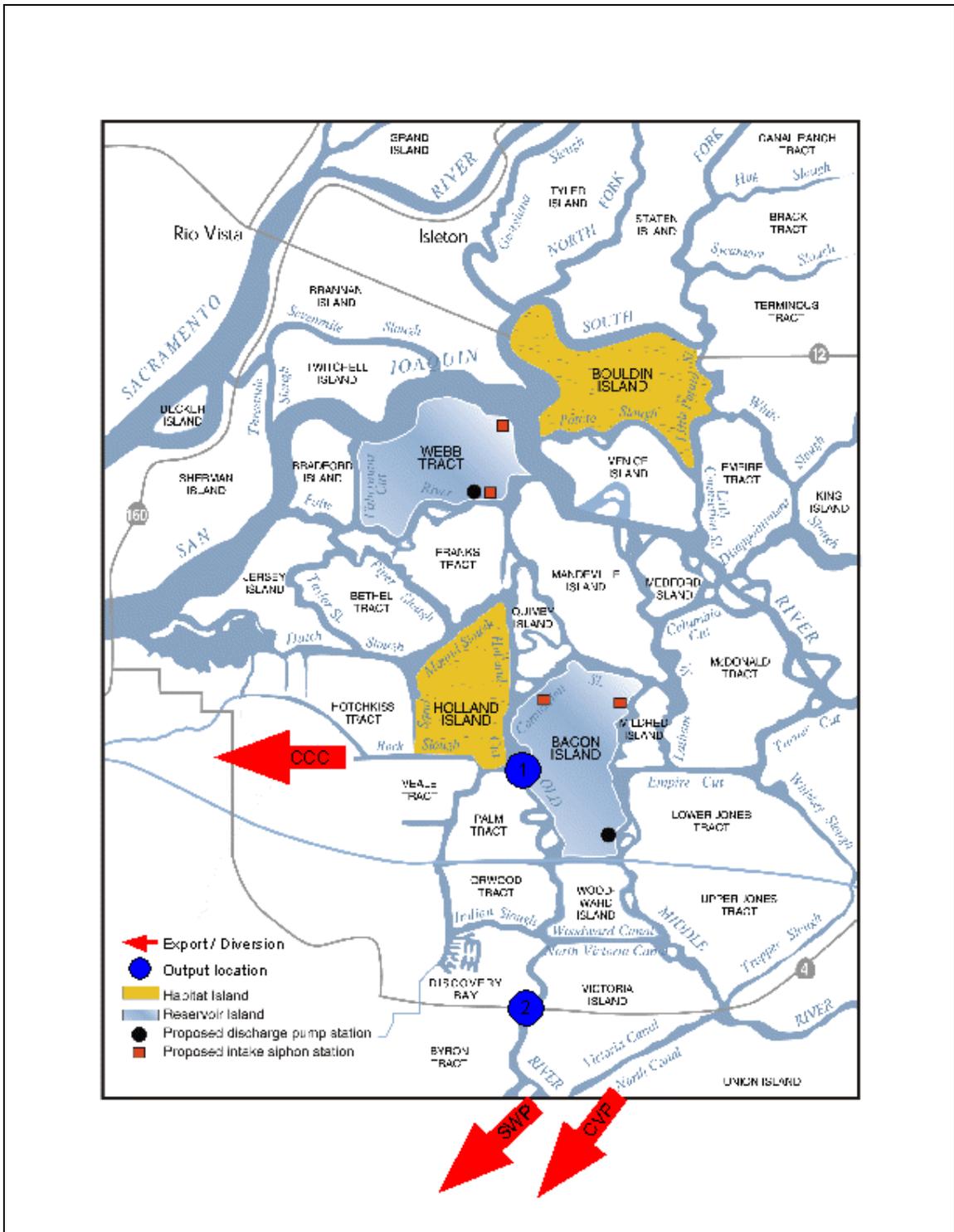


Figure 10: Location of Delta Wetland Project Islands and Output Locations.

Modeled water quality at four export / diversion facilities are shown below for the entire planning period (1975 – 1991): Contra Costa’s Rock Slough intake near the Old River, Contra Costa’s Los Vaqueros intake on the Old River, the SWP and CVP intakes at Banks and Tracy. The actual output locations for Contra Costa’s Rock Slough (location

#1) and Contra Costa’s Los Vaqueros (location #2) intakes were along the Old River, as are shown above in Figure 10. [NOTE: The habitat islands shown in Figure 10 were treated as normal Delta islands in DSM2.]

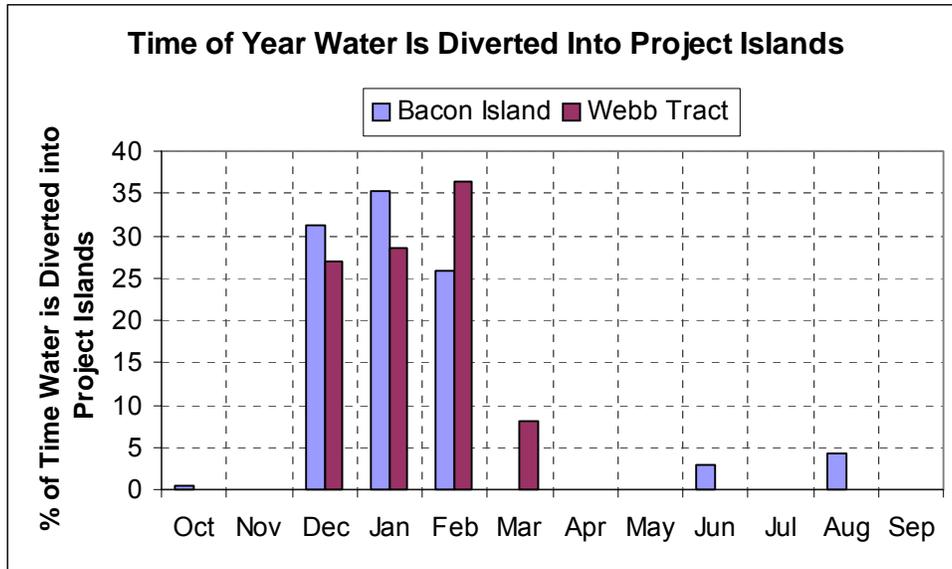


Figure 11: Time of Year Water is Diverted to Project Islands.

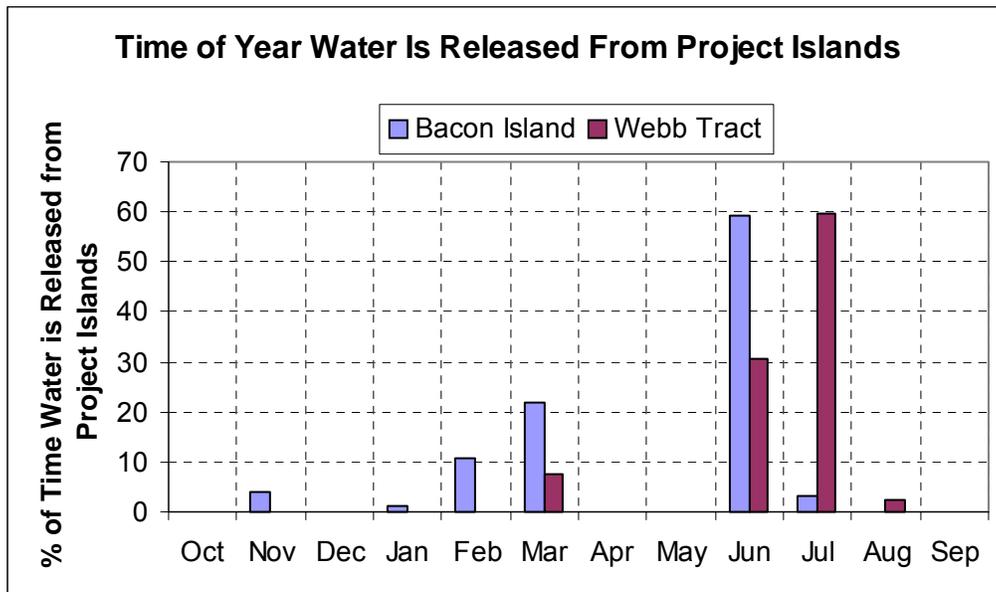


Figure 12: Time of Year Water is Released from Project Islands.

The percentage of the time of year water was diverted to and later released from the project islands for the entire study period is shown in Figures 11 and 12. Generally the islands were filled in the winter months (Dec., Jan., and Feb.) and emptied in the summer months (Jun. and Jul.). The timing of the combined SWP and CVP exports were determined by the DWRSIM 771 study and are shown in Figure 5.

4.1. EC

As described above in Table 3 (see Section 2.2), two reservoirs were created to simulate EC coming from the two project islands: Bacon Island and Webb Tract. These reservoirs were connected to the Delta in DSM2 by using object to object transfers. This technique controlled when water would be added to or removed from the reservoirs. It also allowed for the intake points to be separated from the discharge location.

Since the water quality of the reservoir islands is a function of the water quality around the intakes and the current water quality in each island reservoir, QUAL was able to store the water and account for changes in water quality due to mixing, as shown in Equation 2. The only time water quality in the islands would change was when water was added, which can be seen in Figures 13 and 14.

$$C_{new} = \frac{C_{inf\ lows} V_{inf\ lows} + C_{island} V_{island}}{V_{inf\ lows} + V_{island}} \quad [\text{Eqn. 2}]$$

If the EC concentration of the water at the intakes was lower than the EC levels inside the island reservoir, then the inflows would reduce the island EC concentration. If the EC concentration of the water at the intakes was higher than then the EC levels inside the island, then the inflows would increase the island EC concentration.

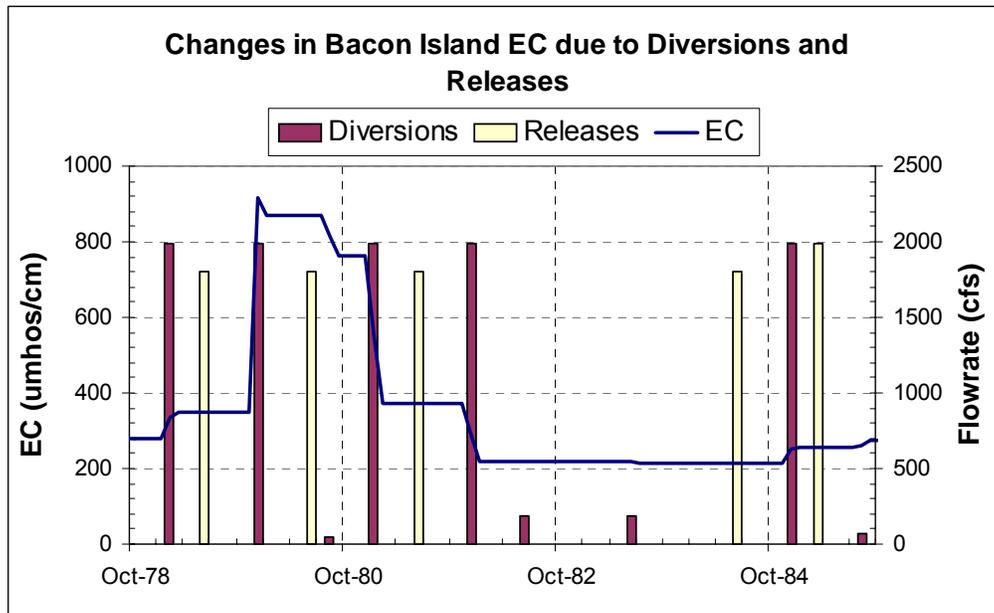


Figure 13: EC (umhos/cm) in Bacon Island.

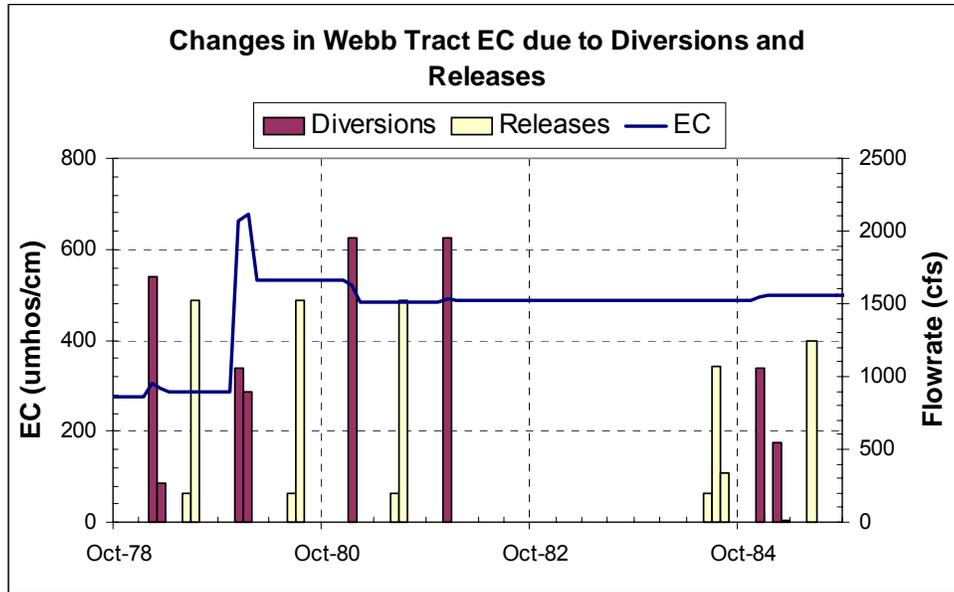


Figure 14: EC (umhos/cm) in Webb Tract.

The act of diverting water into and releasing it from the project islands only had minor changes on the Net Delta Outflow. As shown above in Figure 1, the combined amount of diversion to the islands never exceeded 4,000 cfs. Similarly, the releases (see Figure 2) never exceeded 2,000 cfs. The changes to Net Delta Outflow were fairly small, as is shown below in Figure 15.

Since the EC at downstream boundary (Martinez) was generated using an ANN with Net Delta Outflow as the input, a new EC boundary condition was calculated based on changes to the Net Delta Outflow. The modeled EC for both the base and alternative scenarios is shown below in Figure 16. These differences were fairly small.

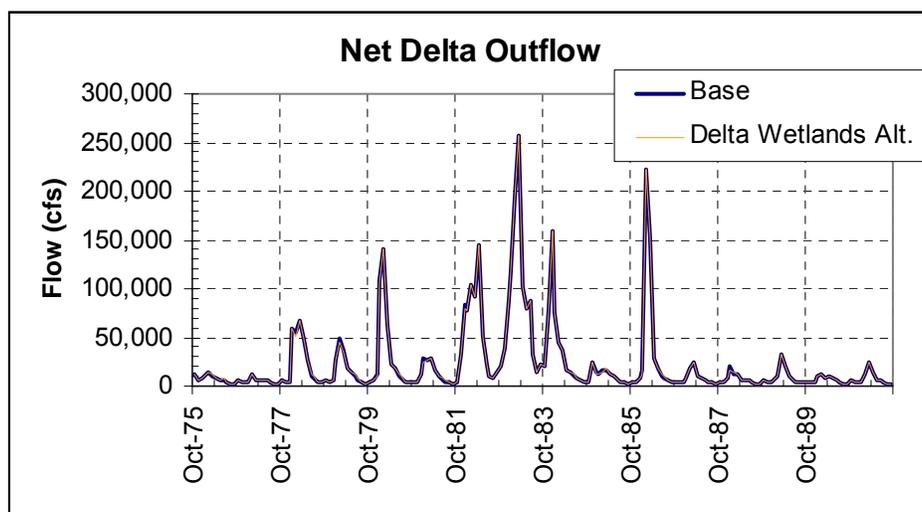


Figure 15: Net Delta Outflow.

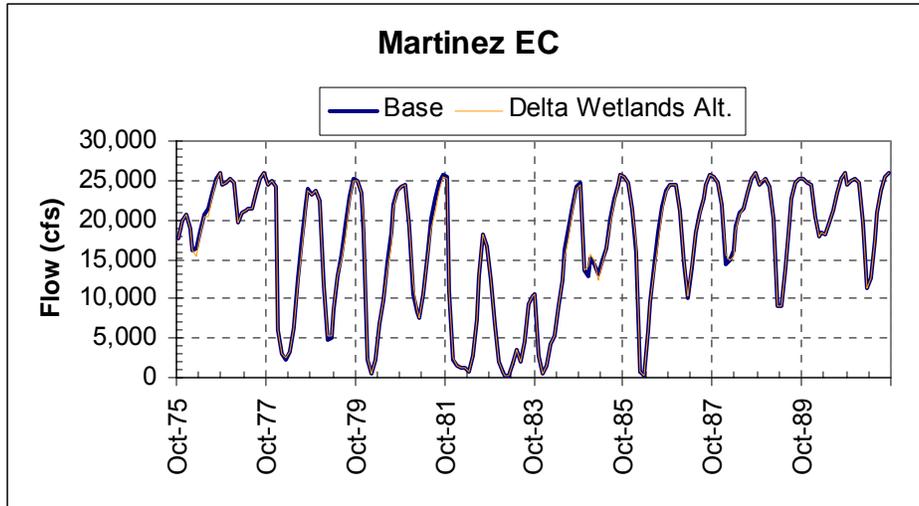


Figure 16: Martinez EC (umhos/cm).

Discharges from the islands did not change the water quality of the reservoirs (see Figures 13 and 14) and had little impact on the EC concentration in the Delta itself. The impacts of the releases from both project islands are compared to the base case scenario in Figures 17 - 28.

The EC values shown in Figures 17, 20, 23, and 26 are monthly averages that were computed using the daily EC values modeled by DSM2. It is important to remember that DWRSIM hydrology was based on a monthly time step, and that the downstream tidal boundary was represented by a repeating tide, which does not include the Spring / Neap cycle that would normally be associated with the draining and filling of the Delta. A chloride standard of 225 mg/l for Rock Slough is shown on all four figures. This standard was converted from Chloride to EC using the relationship shown in Equation 3. Traditionally, a 225 mg/l Cl standard at Rock Slough is used to account for the fact that the 250 mg/l daily standard is being modeled in monthly time steps by DWRSIM and DSM2. In this particular study, the WQMP calls for 90% of the same daily standard (which just happens to be 225 mg/l).

$$EC_{Rock\ Slough} = \frac{Chloride_{Rock\ Slough} + 24}{0.268} \quad [Eqn. 3]$$

The Rock Slough Chloride standard was exceeded at all four urban intake locations for both the base and alternative studies. In fact there is little difference in EC between the two studies. However, since this standard was exceeded for even the base case³, it makes it difficult to evaluate the impact of the Delta Wetlands project operations on the four urban intake locations.

³ DSM2 base case violations of the Rock Slough chloride standard are caused by the mismatch between the G-Model used by DWRSIM and DSM2. An ANN trained using DSM2 has been incorporated into CALSIM II. When future Delta Wetlands DSM2 studies are based on CALSIM operations, this mismatch should be resolved.

The cumulative distribution function (cdf) of EC for each of the four urban intake locations is shown in Figures 18, 21, 24, and 27. Each cdf curve represents the amount of time that EC is equal to or less than a corresponding EC concentration. For example, the 225 mg/l standard shown in Figure 18 is met approximately 74% of the time for both simulations. These cdfs were calculated based on the frequency histograms for absolute EC for every month of the entire 16-year simulations. Again, there is no significant difference between the base and alternative studies at all four locations.

The WQMP also limits the increase in salinity at any of the urban intakes due to project operation to 10 mg/l chloride (which is equivalent to 37 umhos/cm). The cdf for the change (measured as alternative – base case EC) in EC at each location is shown in Figures 19, 22, 25, and 28. These figures illustrate that over the study period that the overall changes in EC tended to be between –50 and 50 umhos/cm. These plots are useful in measuring the impact of the Delta Wetlands project operations on the four urban intake locations.

A summary of the increase in salinity at the urban intakes is shown below in Table 5. The project islands resulted in increases above the WQMP 10 mg/l chloride standard between 5-6% of the time at both the Old River at Rock Slough and Old River at the Los Vaqueros Reservoir intakes.

Table 5: Percent of time that the change in Cl is larger than 10 mg/l.

<i>Location</i>	<i>% Exceedence</i>
Old River at Rock Slough	6
Old River at Los Vaqueros intake	5
State Water Project	3
Central Valley Project	3

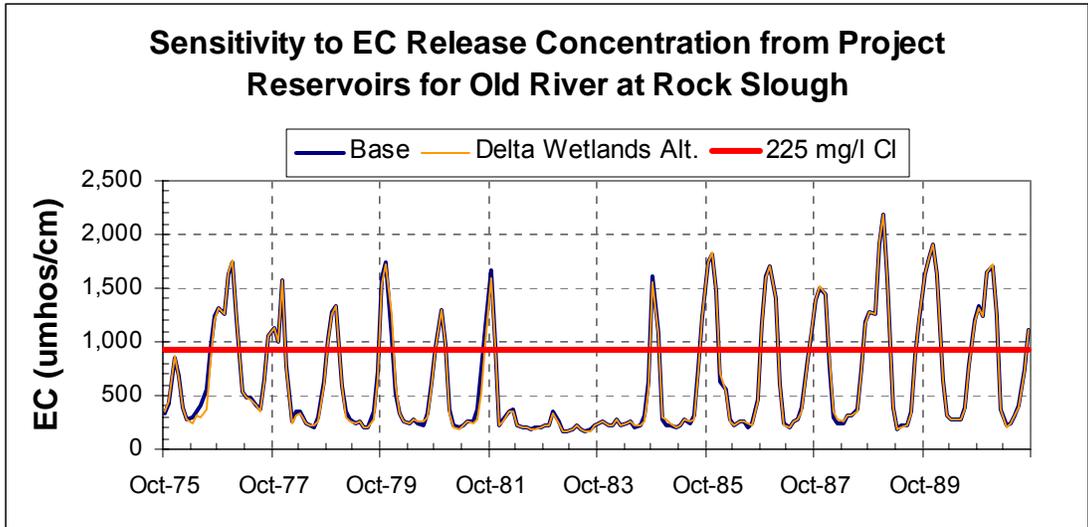


Figure 17: Sensitivity to EC Release Concentration from Project Reservoirs for Old River at Rock Slough.

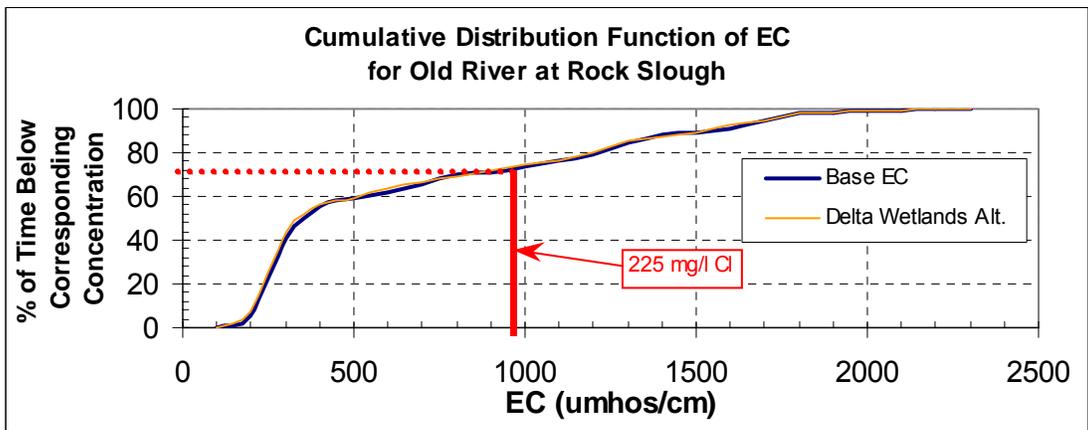


Figure 18: Cumulative Distribution Function of EC for Old River at Rock Slough.

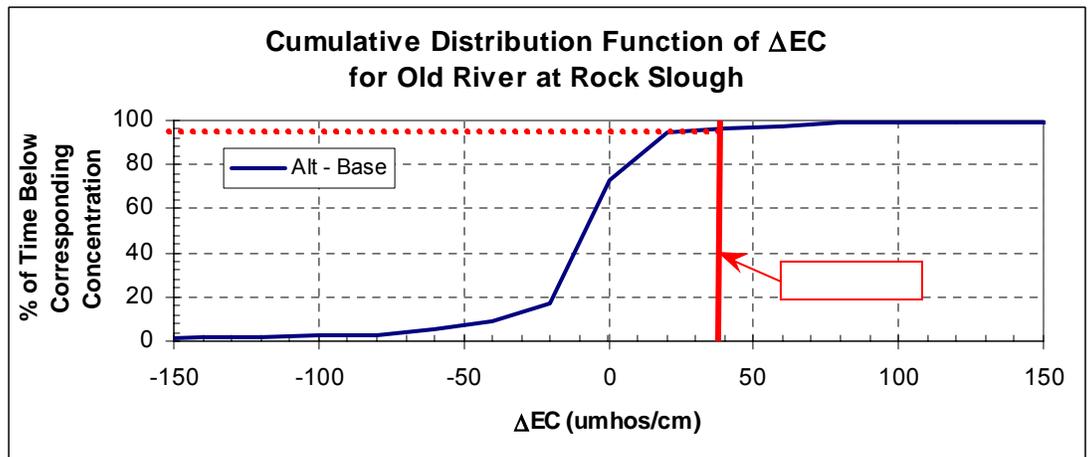


Figure 19: Cumulative Distribution Function of ΔEC for Old River at Rock Slough.

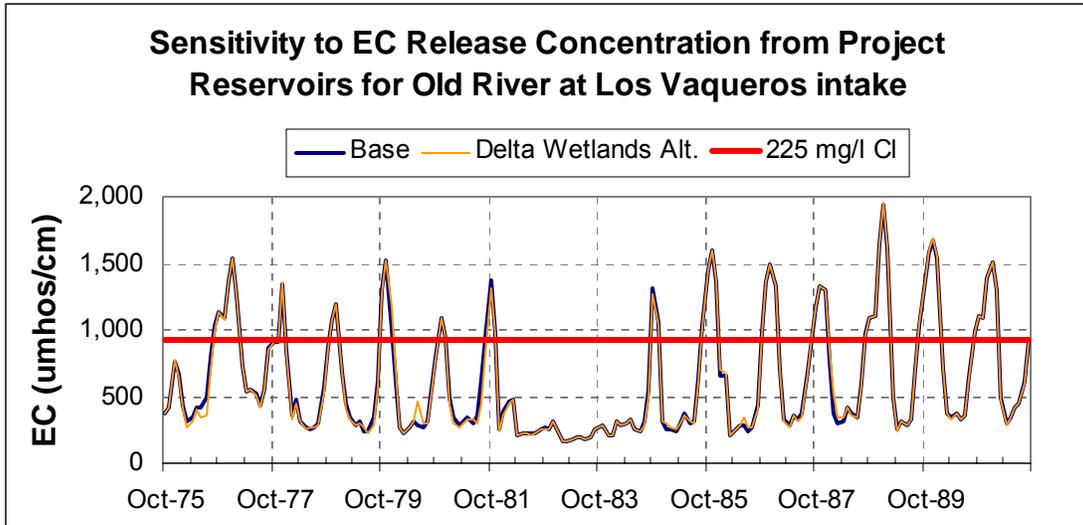


Figure 20: Sensitivity to EC Release Concentration from Project Reservoirs for Old River at Los Vaqueros.

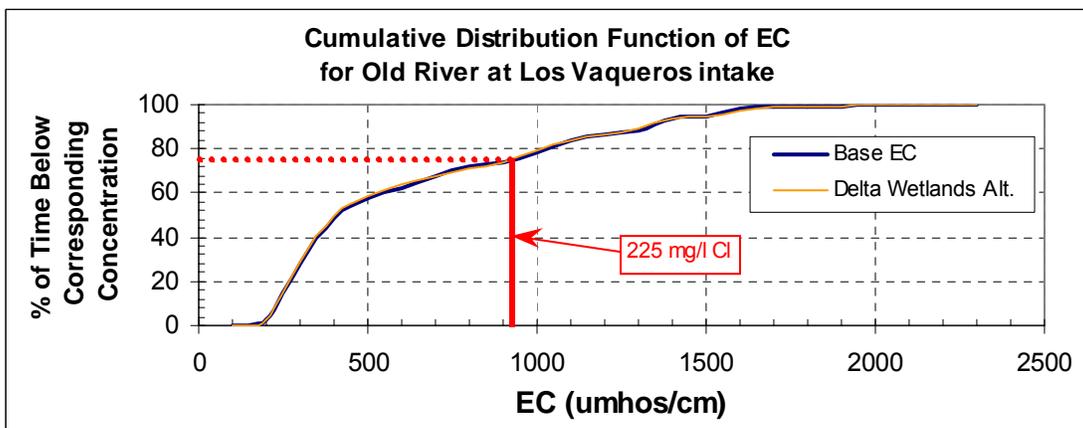


Figure 21: Cumulative Distribution Function of EC for Old River at Los Vaqueros.

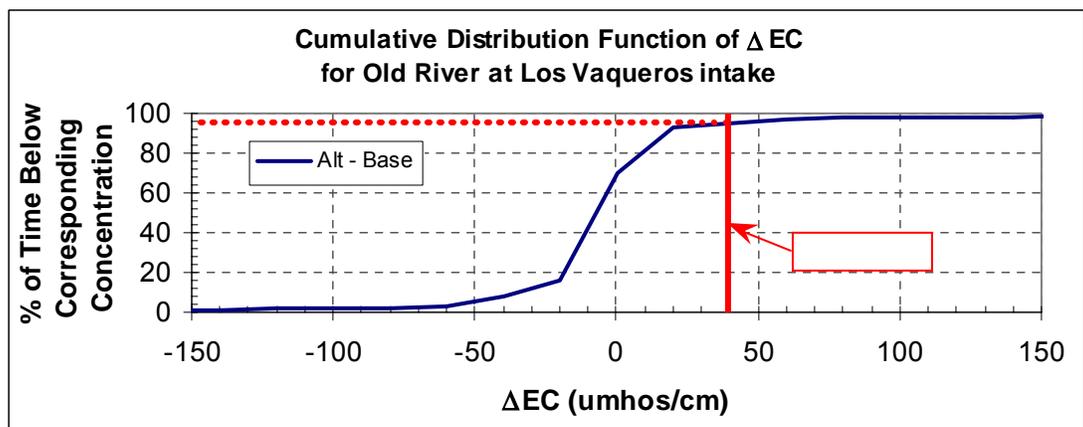


Figure 22: Cumulative Distribution Function of Δ EC for Old River at Los Vaqueros.

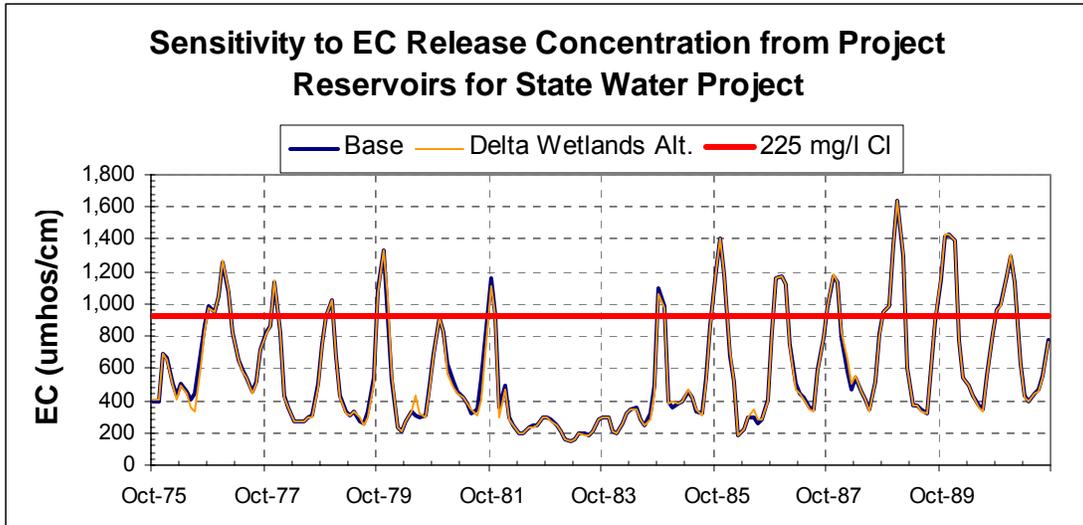


Figure 23: Sensitivity to EC Release Concentration from Project Reservoirs for State Water Project.

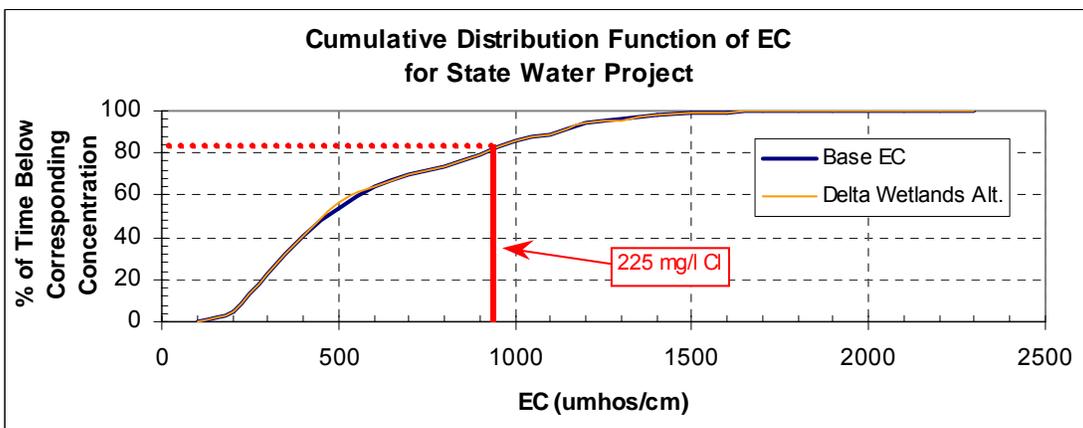


Figure 24: Cumulative Distribution Function of EC for State Water Project.

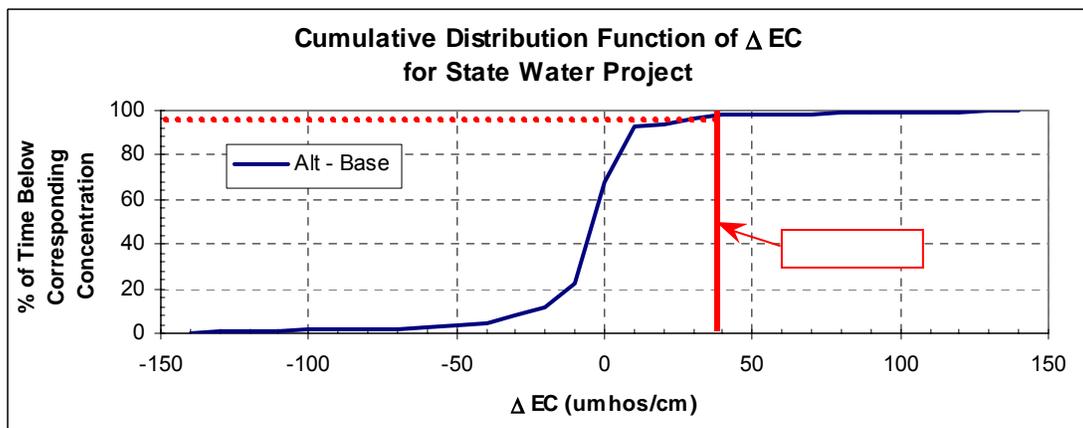


Figure 25: Cumulative Distribution Function of Δ EC for State Water Project.

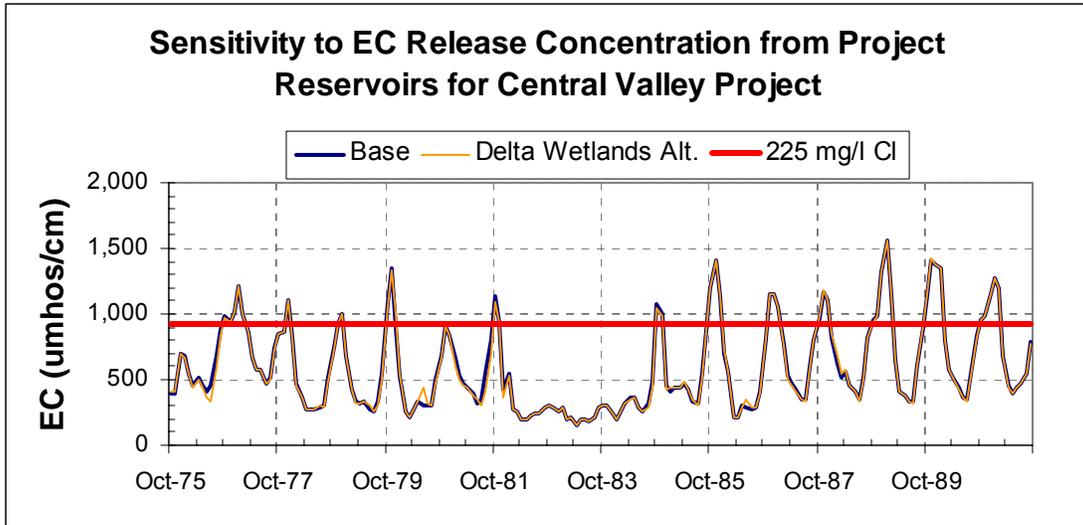


Figure 26: Sensitivity to EC Release Concentration from Project Reservoirs for Central Valley Project.

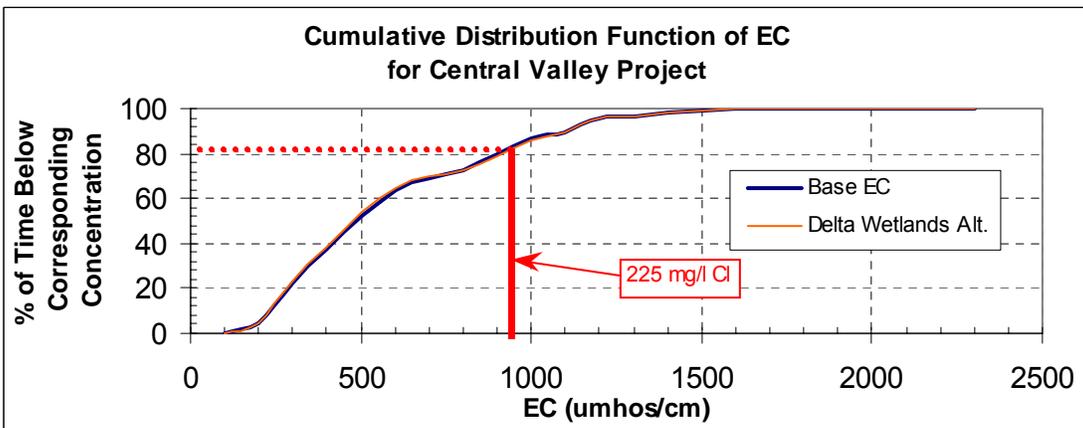


Figure 27: Cumulative Distribution Function of EC for Central Valley Project.

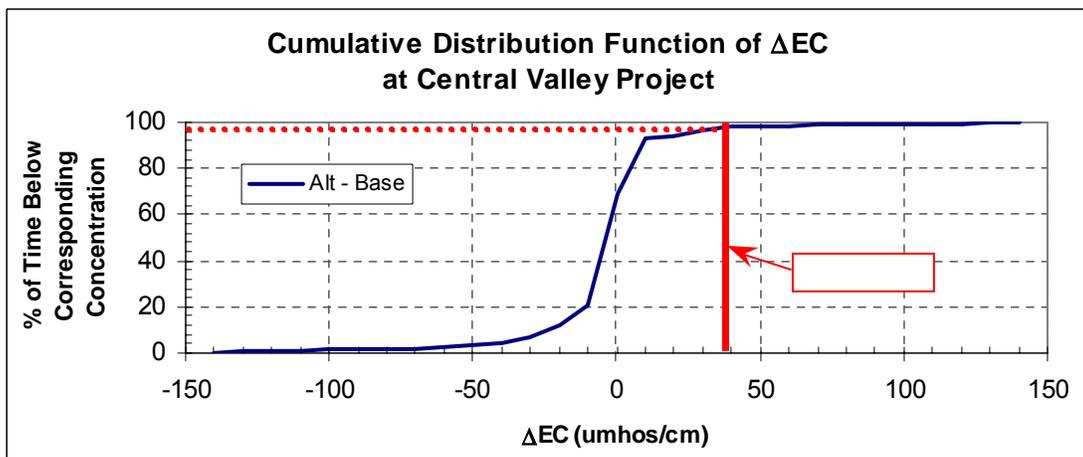


Figure 28: Cumulative Distribution Function of Δ EC for Central Valley Project.

4.2. DOC

Three different bookend DOC simulations were run to create bookends for the impacts on DOC due to the operation of the Delta Wetlands project. The level of the DOC releases for each of these simulations is described above in Table 4 (see Section 2.2).

It was not necessary to model the two islands as reservoirs (as was done for EC modeling). The diversions into the reservoirs were treated as standard diversions. Water was removed from the Delta at the planned intake locations. Similarly, the releases from the islands were treated as rim or return flows at the planned discharge locations. Fixed DOC concentrations were assigned to these releases. The DOC from these releases would then mix with the DOC present in the Delta that came from both the rim boundaries and DICU data (as described above in the simulation inputs section).

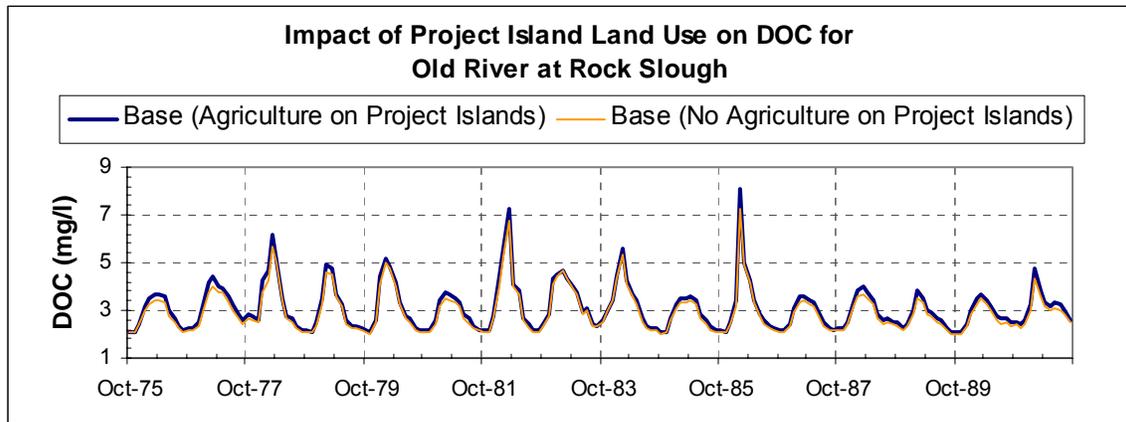


Figure 29: Effect of DICU around the Delta Wetlands Islands on Old River at Rock Slough.

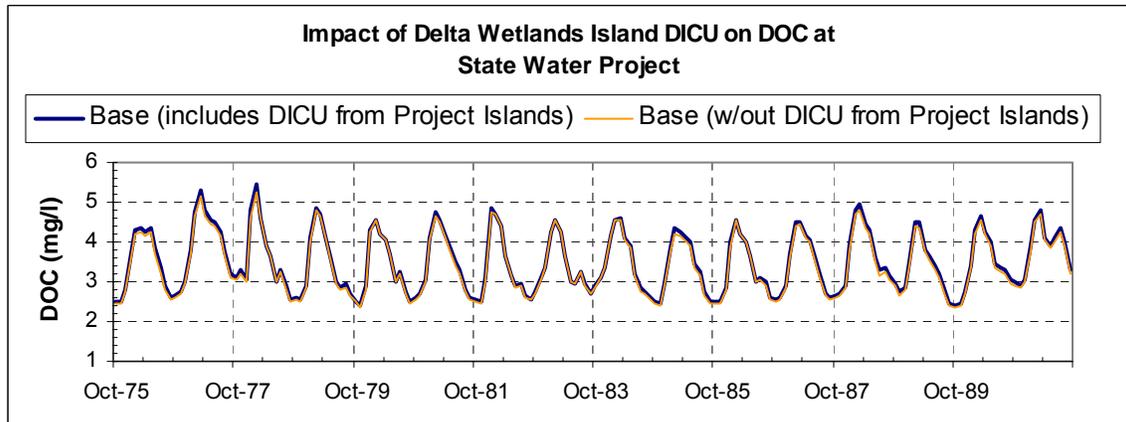


Figure 30: Effect of DICU around the Delta Wetlands Islands at the SWP.

In order to assess the effect of changing the land use on the project islands independently of the planned Delta Wetlands Project operations, an additional scenario, where only the consumptive use for Bacon Island and Webb Tract was changed, was run. This

difference is referred to as the *DOC ag credit*. As shown in Figures 29 and 30, the *DOC ag credit* at both Old River at Rock Slough and at the State Water Project Tracy Pumping plant is relatively small.

Figures 31, 34, 37, and 40 illustrate the sensitivity to DOC release concentrations at each of the four urban intake locations: Old River at Rock Slough, Old River at the Los Vaqueros intake, the State Water Project intake at Banks Pumping Plant, and the Central Valley Project intake at Tracy. The 4 mg/l DOC standard described in the Delta Wetlands Water Quality Management Plan (WQMP) is shown on these figures.

The base case DOC concentration at Rock Slough, as shown in Figures 29 and 31, ranged between 2 and 8 mg/l. Further south at the State Water Project (see Figures 30 and 37), DOC ranged from 2.5 mg/l to 5.5 mg/l. The maximum monthly averaged DOC concentration at all four export locations over the entire 16-year planning study is summarized in Table 6.

Table 6: Maximum monthly averaged DOC (mg/l) concentrations.

<i>Location</i>	<i>Base</i>	<i>Low (6 mg/l)</i>	<i>Mid (15 mg/l)</i>	<i>High (30 mg/l)</i>
Old River at Rock Slough	8.10	7.03	7.03	7.03
Old River at Los Vaqueros intake	7.90	7.57	10.59	19.37
State Water Project	5.43	5.11	7.89	12.57
Central Valley Project	5.13	5.01	7.47	11.58

In the base case, the periods of high DOC for all of the locations coincided with the high runoff periods that start in the spring and sometimes last through early summer. The *DOC ag credit* discussed above typically appeared to lower the DOC concentrations in the early spring period for all three bookend scenarios at Rock Slough (see Figure 31), but was less significant at the other three urban intake locations (see Figures 34, 37, and 40). The increases in the maximum monthly averaged DOC concentration at all four intake locations in the alternative scenarios occurred in the summer months and correspond with the project island release periods.

The Los Vaqueros intake on the Old River had the highest modeled DOC concentrations for all three alternative scenarios. The Los Vaqueros intake is located between the Bacon Island discharge point and the SWP and CVP intakes, so it is not surprising that the DOC concentrations for Los Vaqueros are higher than the other three locations.

The maximum monthly increase in DOC for each of the bookend scenarios is shown in Table 7. The largest increases for all three simulations were at the Los Vaqueros intake.

Table 7: Maximum monthly increase in DOC (mg/l).

<i>Location</i>	<i>Low - Base</i>	<i>Mid - Base</i>	<i>High - Base</i>
Old River at Rock Slough	0.34	1.63	3.77
Old River at Los Vaqueros intake	0.95	5.97	14.75
State Water Project	0.66	3.09	12.57
Central Valley Project	0.66	3.00	6.91

The impact of the project operations is better illustrated in Figures 32, 36, 39, and 42 as a time series of the change in DOC (alternative – base). The WQMP limits the maximum increase in DOC due to project operations based on the modeled base case DOC concentration. When the base case DOC is either less than 3 mg/l or greater than 4 mg/l, the maximum increase in DOC is 1 mg/l. When the base case DOC is between 3 mg/l and 4 mg/l, then the alternative DOC can not exceed 4 mg/l. This standard is illustrated as a changing time series with values between 0 to 1 mg/l.

At Old River at Rock Slough the low – base difference did not exceed the WQMP maximum increase in DOC standard. With the exception of the summers of 1984 and 1987 the mid – base difference exceeded the WQMP maximum increase standard. Furthermore, it should be noted that the Webb Tract release in the summer of 1987 was only 432 cfs and there was no Bacon Island release during this period (see Figure 2), which explains why even the high – base difference did not exceed the maximum increase standard in 1987.⁴ There was a similar trend in results at the other three urban intake locations. However, the low – base difference did exceed the WQMP at each of the other three urban intake locations in the summer of 1981 (see Figures 35, 38, and 41).

Frequency histograms of the change in DOC for the entire simulation period were used to create cumulative distribution functions (cdfs) representing the relative change in DOC for each location. These cdfs are shown in Figures 34, 37, 40, and 43. On each cdf, a 1 mg/l limit is shown. The point where this limit intersects each of the three cdf curves represents the percentage of time that the change in DOC due to project operations will be equal to or less than the limit

For example, according to Figure 34, high DOC releases from the project islands will result in changes in DOC at Rock Slough that are equal to or less than 1 mg/l 90% of the time. Similarly, this means that 10% of the time the operation of the project will result in increases in DOC at Rock Slough that are greater than 1 mg/l. A summary of the increases in DOC due to the operation of the project for the entire simulation period is shown below in Table 8.

Table 8: Percent of time that the change in DOC is larger than 1 mg/l.

<i>Location</i>	<i>% Exceedence Low – Base</i>	<i>% Exceedence Mid – Base</i>	<i>% Exceedence High – Base</i>
Old River at Rock Slough	0	4.7	9.9
Old River at Los Vaqueros intake	0	7.3	14.6
State Water Project	0	4.7	10.9
Central Valley Project	0	4.7	10.9

⁴ The Delta Wetlands preliminary operational diversion and release schedule did not completely fill Bacon Island in the spring of 1987. Using the operational rules discussed in Section 2.2, the summer releases of 1987 were met using the over-year storage of Webb Tract. The summer 1987 release was only 432 cfs, which is less than half of any of the other releases from Webb Tract. According to the Delta Wetlands operational release schedule Webb Tract releases typically ranged from 1000 to 1500 cfs.

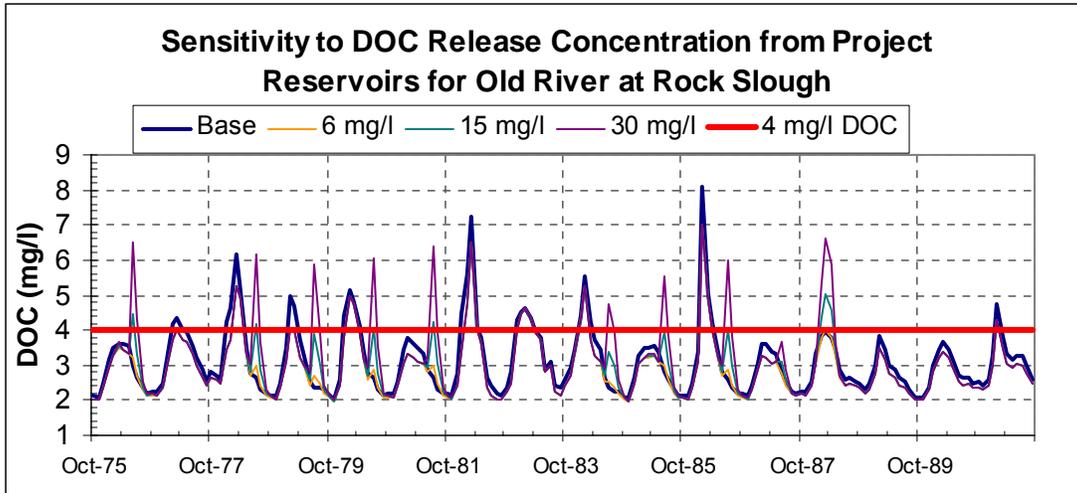


Figure 31: Time Series of DOC for Old River at Rock Slough.

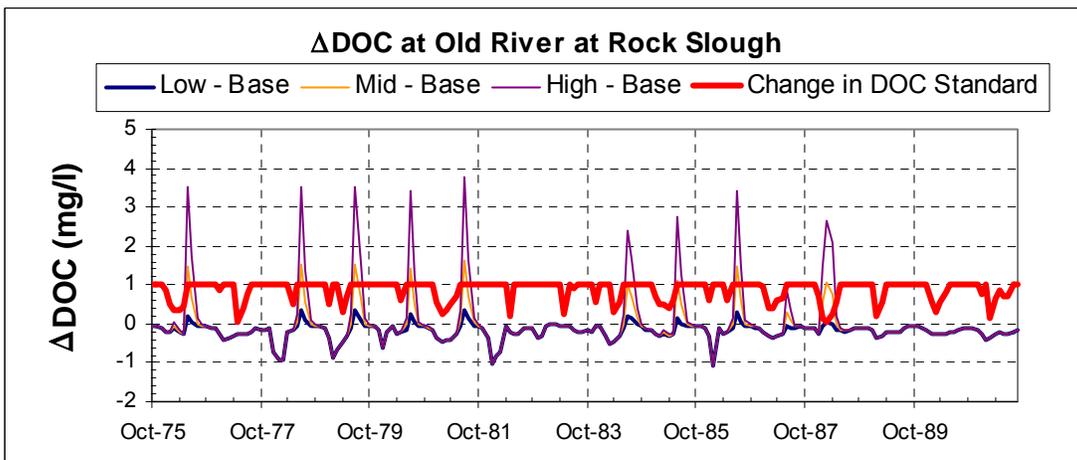


Figure 32: Time Series of Change in DOC (Alternative – Base) for Old River at Rock Slough.

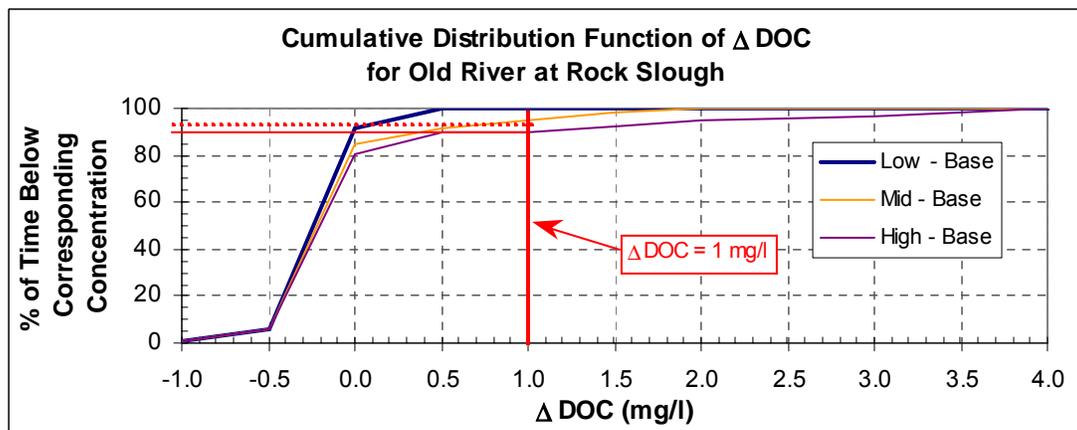


Figure 33: Cumulative Distribution Function of Change in DOC (Alternative – Base) for Old River at Rock Slough.

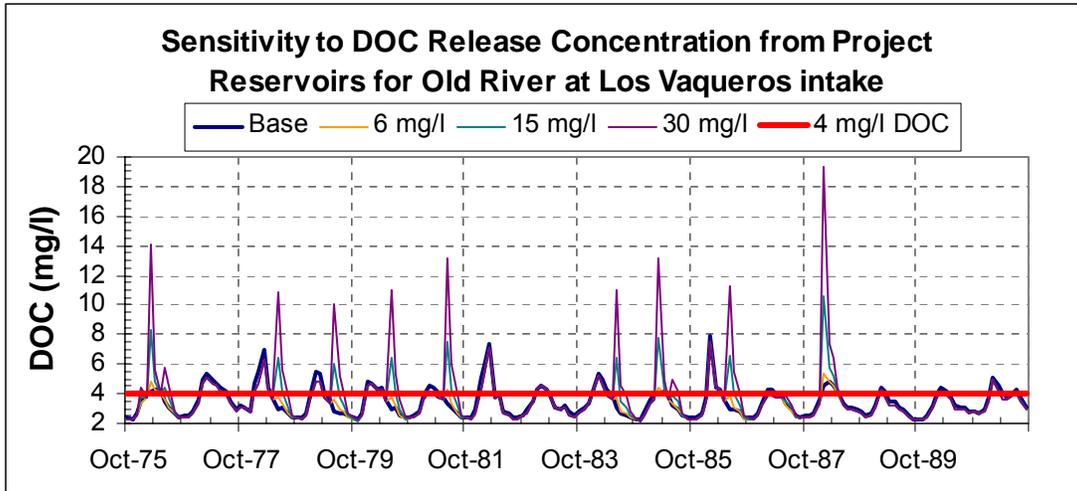


Figure 34: Time Series of DOC for Old River at Los Vaqueros intake.

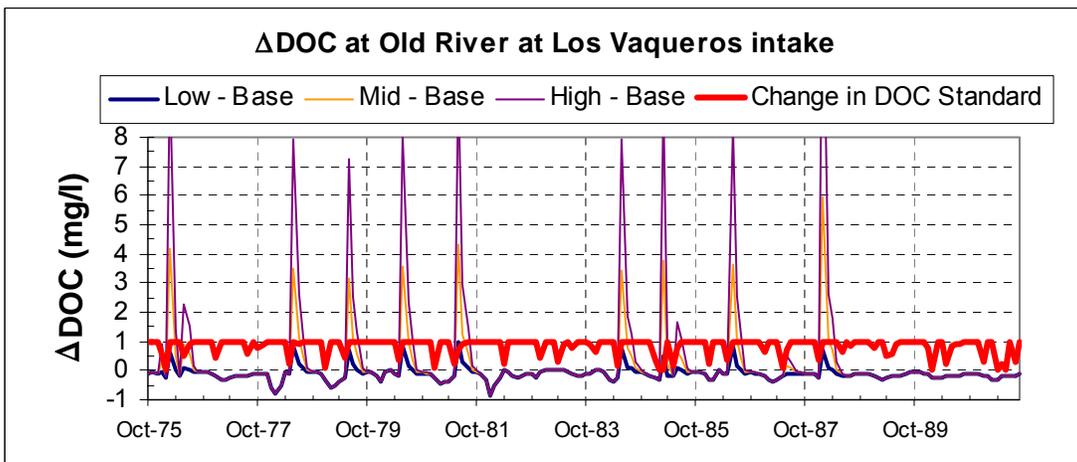


Figure 35: Time Series of Change in DOC (Alternative – Base) for Old River at Los Vaqueros intake.

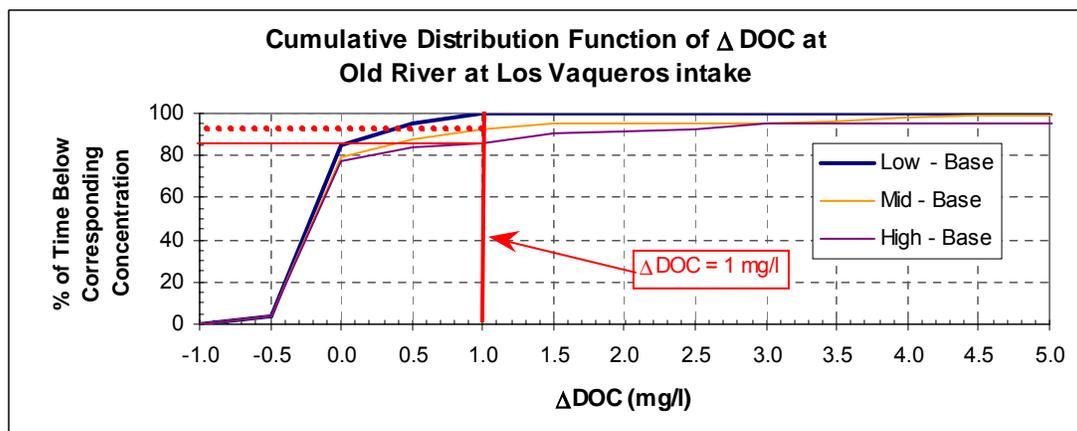


Figure 36: Cumulative Distribution Function of Change in DOC (Alternative – Base) for Old River at Los Vaqueros intake.

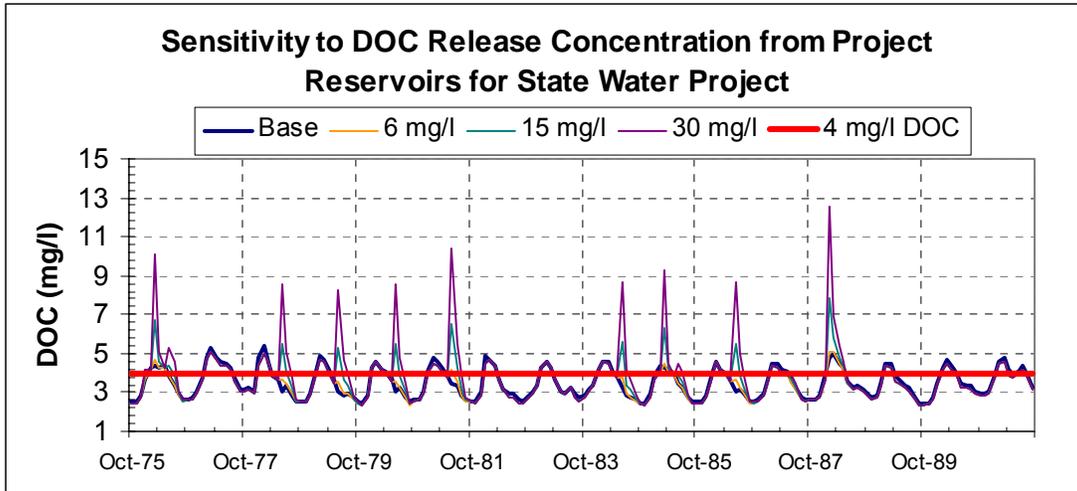


Figure 37: Time Series of DOC for the State Water Project.

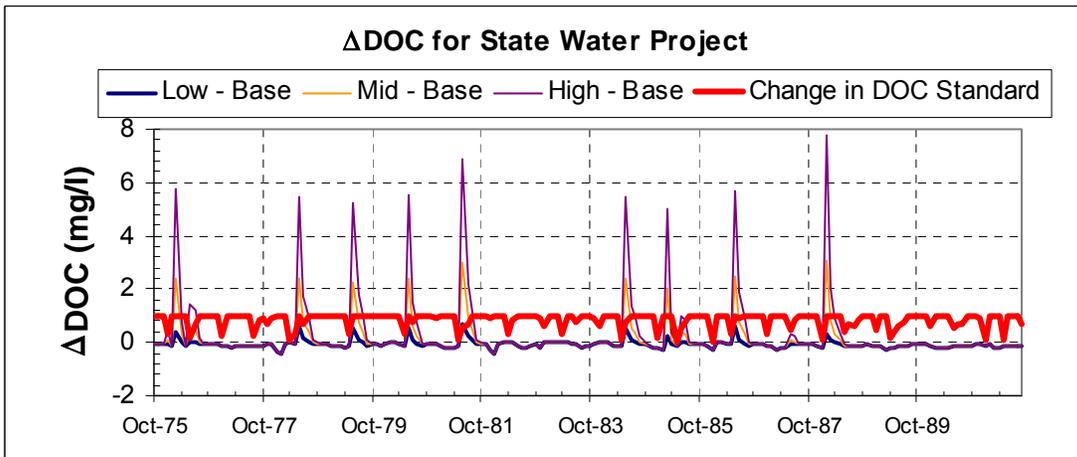


Figure 38: Time Series of Change in DOC (Alternative – Base) for the State Water Project.

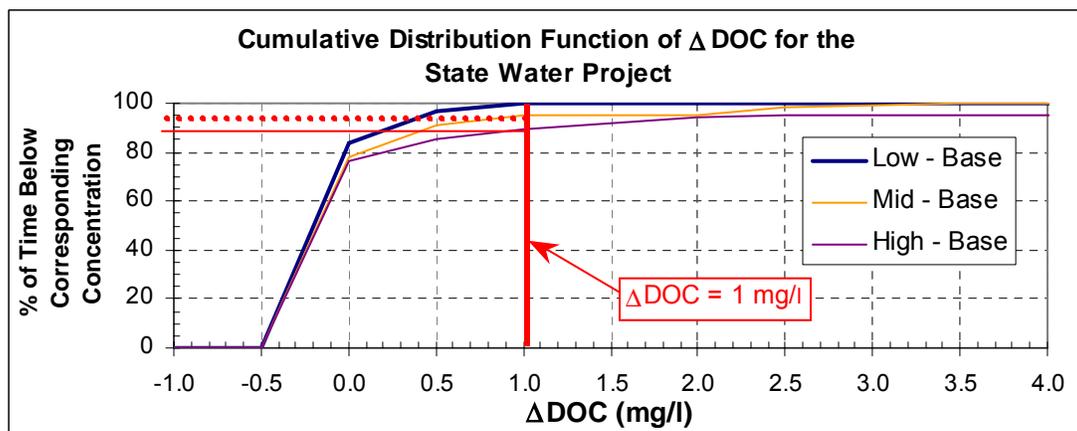


Figure 39: Cumulative Distribution Function of Change in DOC (Alternative – Base) for the State Water Project.

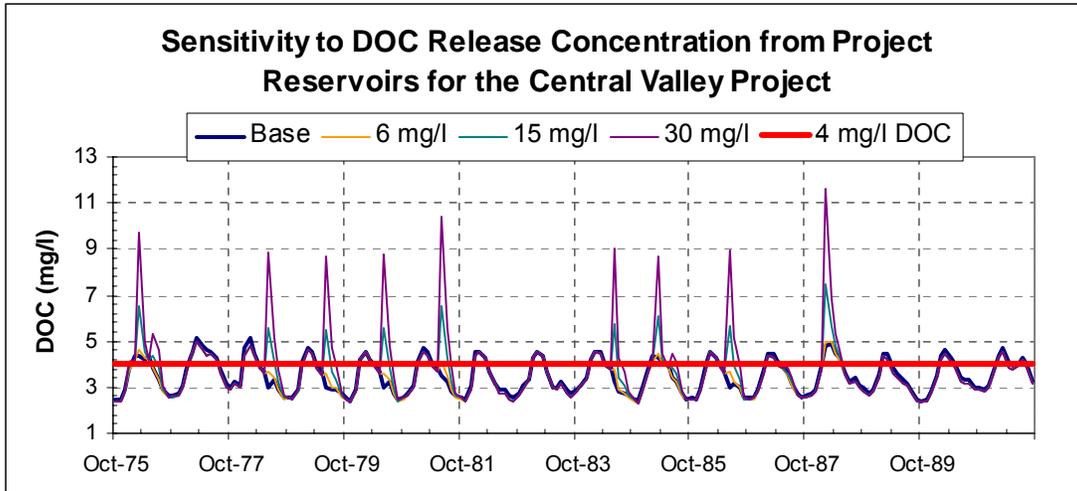


Figure 40: Time Series of DOC for the Central Valley Project.

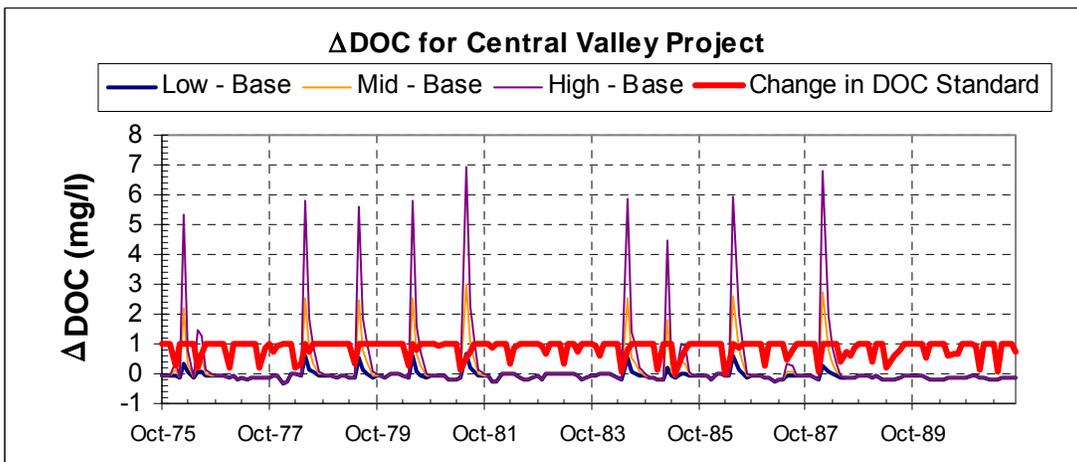


Figure 41: Time Series of Change in DOC (Alternative - Base) for the Central Valley Project.

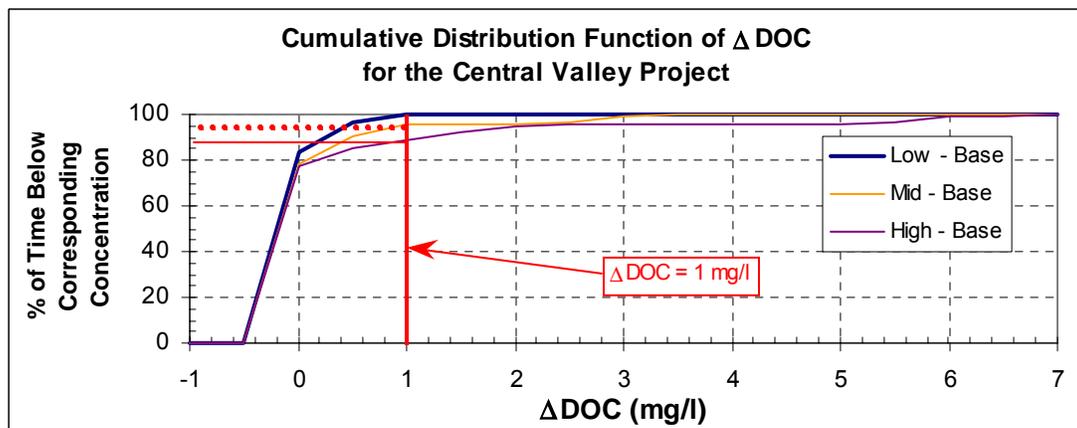


Figure 42: Cumulative Distribution Function of Change in DOC (Alternative - Base) for the Central Valley Project.

4.3. Long-Term DOC

The mass loading of DOC for the State Water Project and Central Valley Project was calculated by multiplying the DSM2 modeled DOC concentrations with the DWRSIM 771 monthly exports for each location. The mass loading of DOC for the Old River at Rock Slough and Old River at the Los Vaqueros Intake was calculated by multiplying the DSM2 modeled DOC concentrations with planned future CCWD diversions developed using CCWD’s CCWDOPs model (Denton 2001)⁵.

The WQMP stipulated that the long-term increase in DOC mass loading be calculated as a 3-year running average. Time series plots of the long-term DOC mass loading (expressed in 1000 metric tons / month) at each of the urban intake locations are shown in Figures 43, 46, 49, and 52. The low-DOC release concentration (6 mg/l) from the project islands resulted in long-term DOC mass loading that closely resembled the base case long-term DOC mass loading at all four urban intake locations. Similarly, the high-DOC release concentration (30 mg/l) from the project islands was uniformly higher than the base case DOC mass loading.

The 3-year running averages for both the base case and alternative scenarios were then used to calculate the increases in long-term DOC mass loading using Equation 4.

$$\% DOC_{Increase\ w/\ Project} = \frac{DOC_{w/\ Project} - DOC_{w/o\ project}}{DOC_{w/o\ project}} \times 100\% \quad [Eqn. 4]$$

The WQMP limits the long-term DOC mass loading increases at the intake locations due to the project operation to 5%. This 5% limit is shown on the time series plots (Figures 44, 47, 50, and 53) of the long-term percent increase of DOC mass loading at each of the intake locations. As discussed above, the low-DOC release concentration from the project islands did not result in a long-term increase in DOC mass loading at any of the intakes. The maximum percent increases in the long-term DOC mass loading are shown in Table 9.

Table 9: Maximum Percent Increase in Long-Term DOC Mass Loading.

<i>Location</i>	<i>Low – Base</i>	<i>Mid – Base</i>	<i>High – Base</i>
Old River at Rock Slough	-2	12	33
Old River at Los Vaqueros intake	0	14	38
State Water Project	-1	6	18
Central Valley Project	0	9	23

Frequency histograms of the percent increase in long-term DOC mass loading for the entire simulation period were used to create cumulative distribution functions (cdfs) to represent the long-term impact of the project operations. These cdfs are shown in Figures

⁵ The DSM2 simulation did not separate the CCWD diversions from Old River at Rock Slough and Old River at the Los Vaqueros Intake location. Instead DWRSIM 771 diversions at Rock Slough were used to represent CCWD’s total diversions. Future DSM2 simulations will make use of the CCWD CCWDOPs planned diversion data.

45, 48, 51, and 54. The WQMP maximum 5% increase in long-term DOC mass loading standard is shown on each figure. The low-DOC release scenario did not exceed this WQMP standard for any of the intake locations. However, both the mid- and high-DOC release scenarios exceeded the 5% limit at each location.

The percent of the time that each scenario was equal to or below the WQMP maximum 5% increase standard is shown in Table 10. The largest increases in long-term DOC mass loading occurred at Los Vaqueros Reservoir intake on the Old River.

Table 10: Percent Time that the Percent Increase of Long-Term DOC Mass Loading meets the WQMP maximum 5% increase standard.

<i>Location</i>	<i>Low – Base</i>	<i>Mid – Base</i>	<i>High – Base</i>
Old River at Rock Slough	100	48	29
Old River at Los Vaqueros intake	100	39	4
State Water Project	100	84	30
Central Valley Project	100	66	21

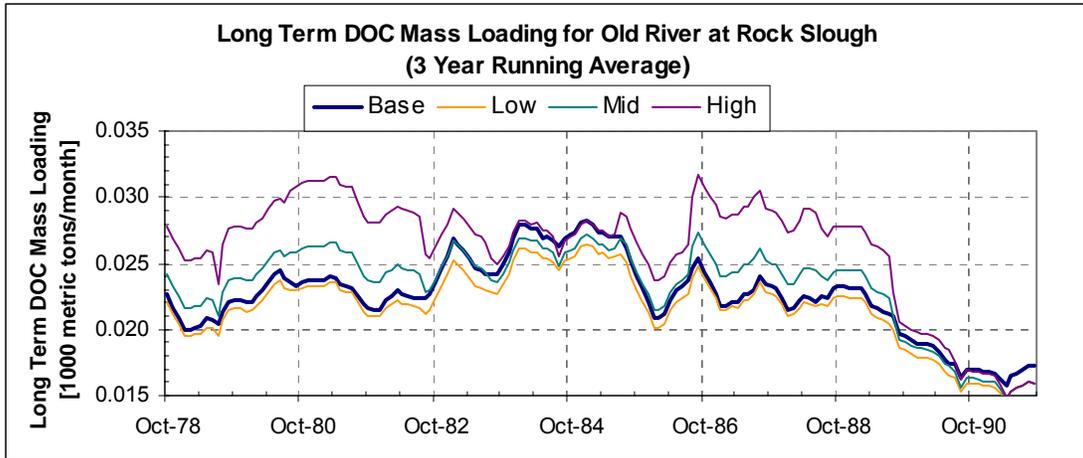


Figure 43: Long Term DOC Mass Loading for Old River at Rock Slough based on a 3-Year Running Average.

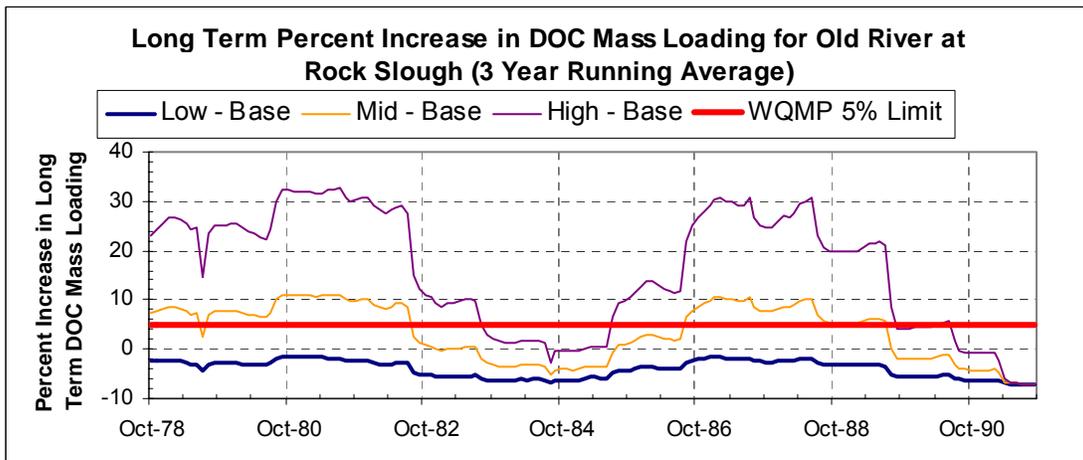


Figure 44: Percent Increase in Long Term DOC Mass Loading for Old River at Rock Slough based on a 3-Year Running Average.

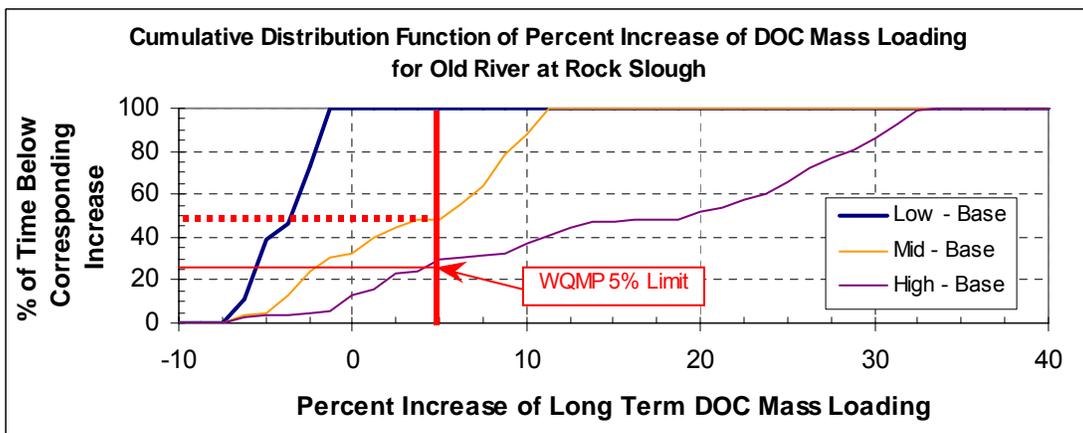


Figure 45: Cumulative Distribution Function of Percent Increase of Long Term DOC Mass Loading for Old River at Rock Slough.

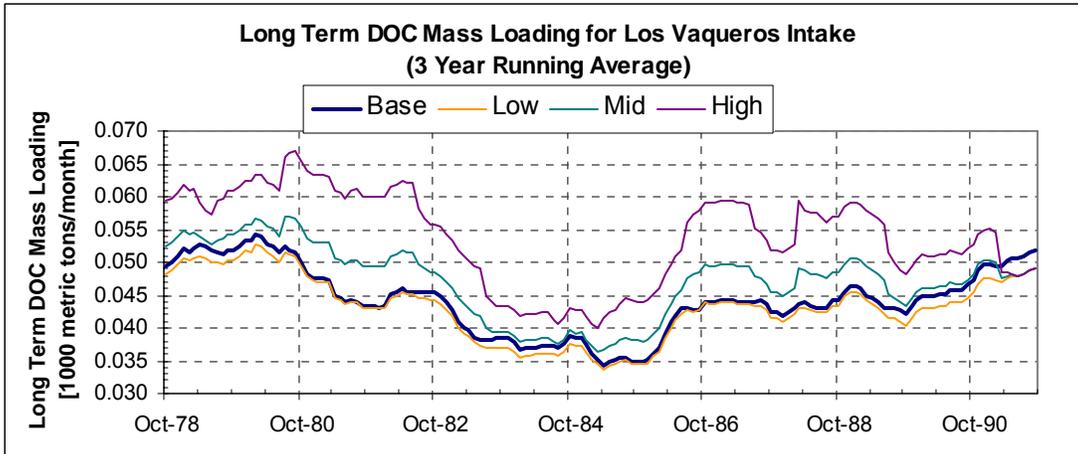


Figure 46: Long Term DOC Mass Loading for Old River at Los Vaqueros intake based on a 3-Year Running Average.

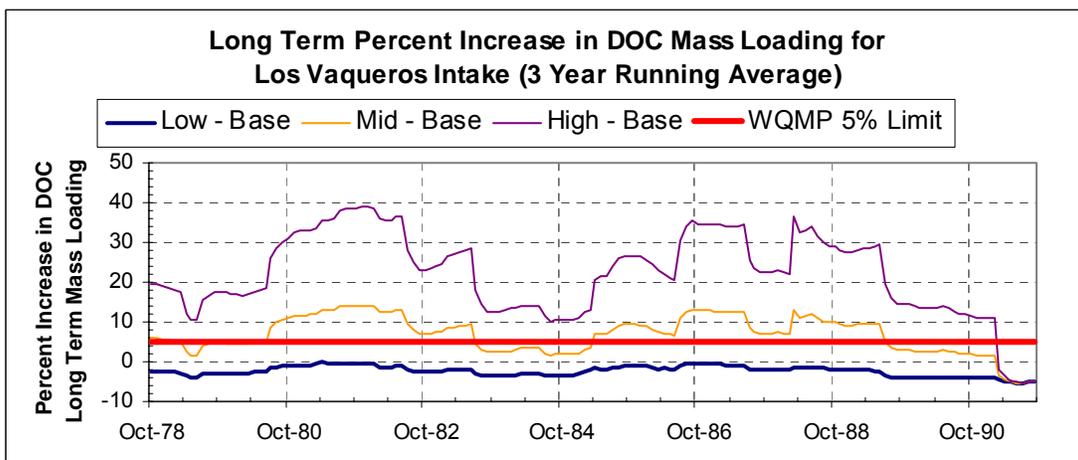


Figure 47: Percent Increase in Long Term DOC Mass Loading for Old River at Los Vaqueros intake based on a 3-Year Running Average.

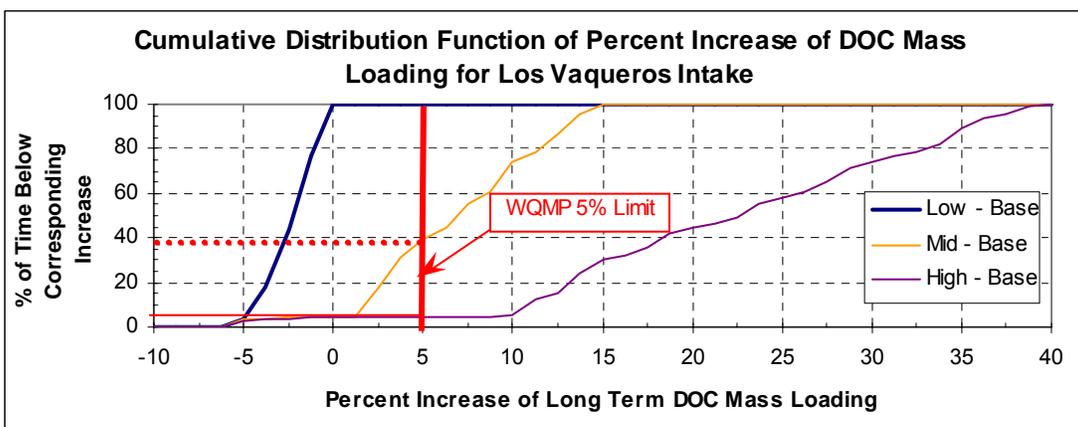


Figure 48: Cumulative Distribution Function of Percent Increase of Long Term DOC Mass Loading for Old River at Los Vaqueros intake.

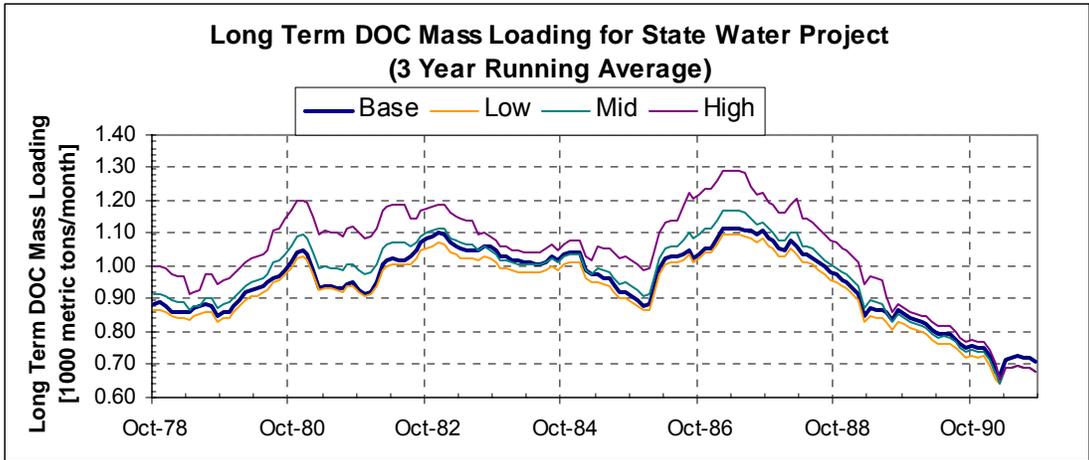


Figure 49: Long Term DOC Mass Loading for State Water Project based on a 3-Year Running Average.

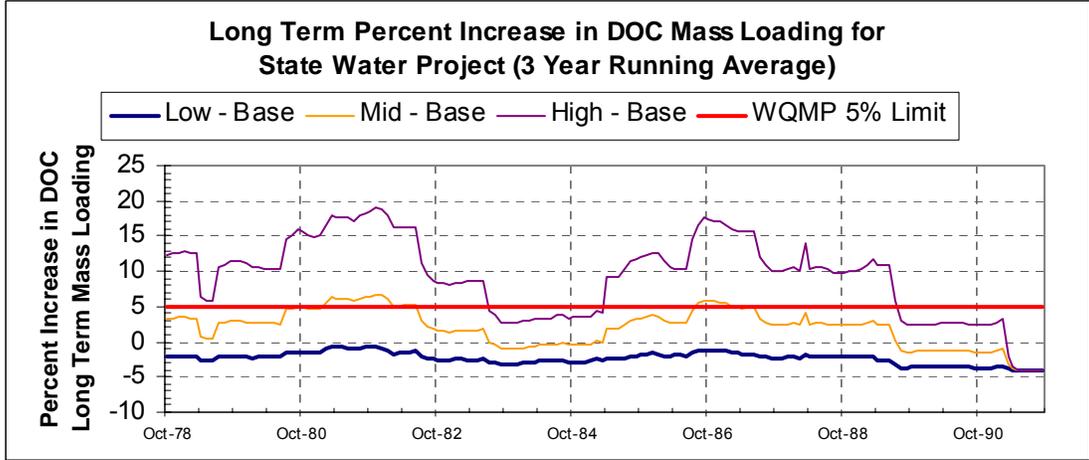


Figure 50: Percent Increase in Long Term DOC Mass Loading for State Water Project based on a 3-Year Running Average.

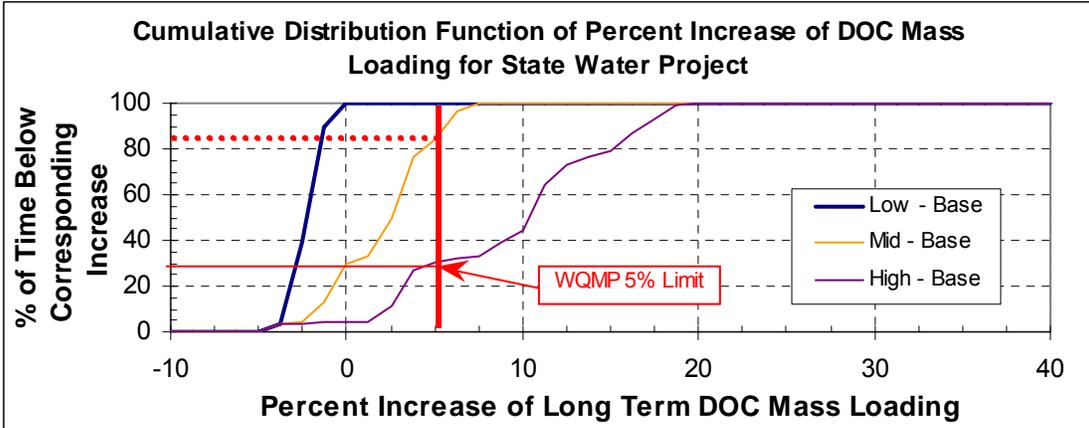


Figure 51: Cumulative Distribution Function of Percent Increase of Long Term DOC Mass Loading for State Water Project.

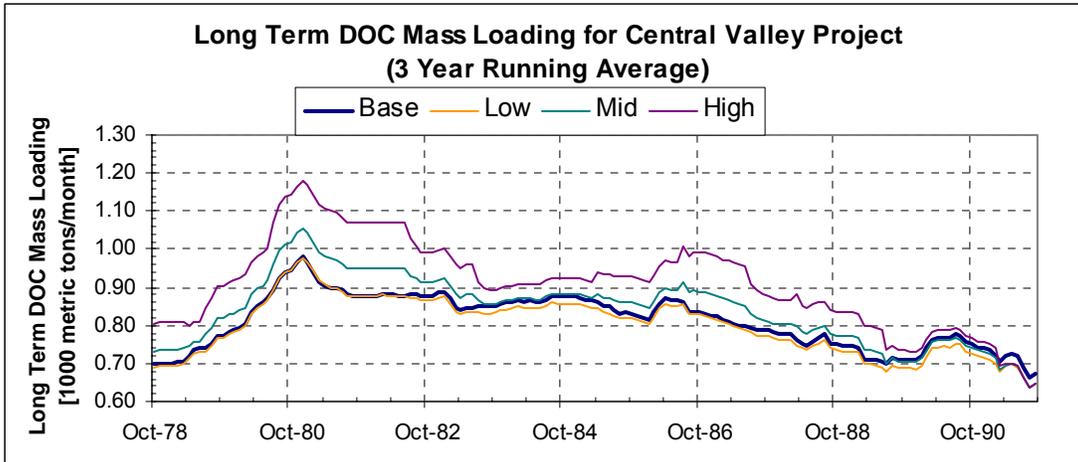


Figure 52: Long Term DOC Mass Loading for Central Valley Project based on a 3-Year Running Average.

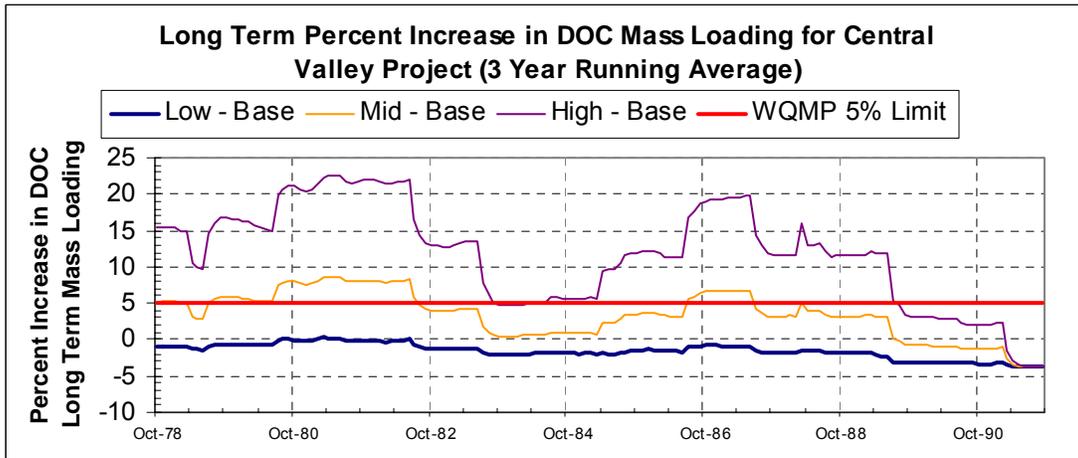


Figure 53: Percent Increase in Long Term DOC Mass Loading for Central Valley Project based on a 3-Year Running Average.

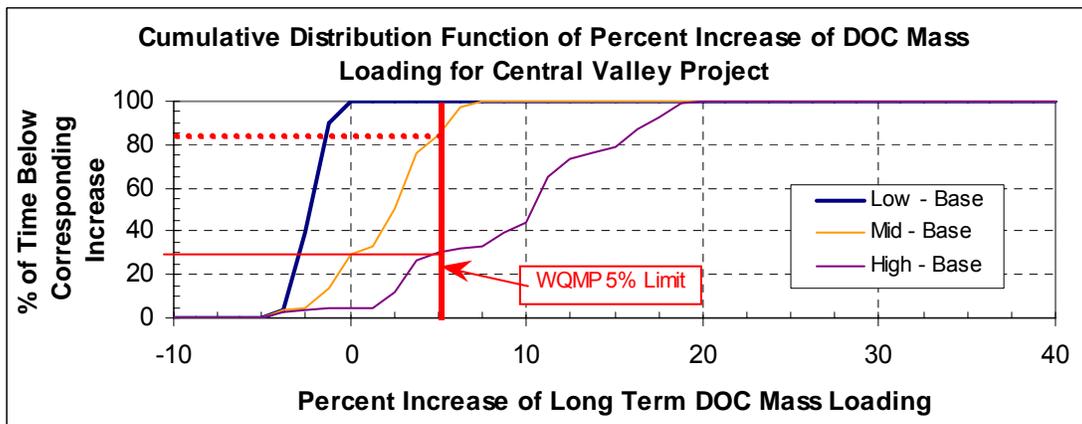


Figure 54: Cumulative Distribution Function of Percent Increase of Long Term DOC Mass Loading for Central Valley Project.

4.4. UVA

Three different UVA simulations were run to find UVA levels at the four urban water intakes due to the operation of the Delta Wetlands project that could later be used to compute TTHM (see Section 4.5). The level of the UVA releases for each of these bookend simulations is described above in Table 4 (see Section 2.2).

The UVA simulations were treated similar to the DOC simulations (see Section 4.2). The diversions into the reservoirs were treated as standard diversions. Water was removed from the Delta at the planned intake locations. Similarly, the releases from the islands were treated as rim or return flows at the planned discharge locations. Fixed UVA measurements were assigned to these releases. The UVA from these project island releases mixed with the already present in channel UVA.

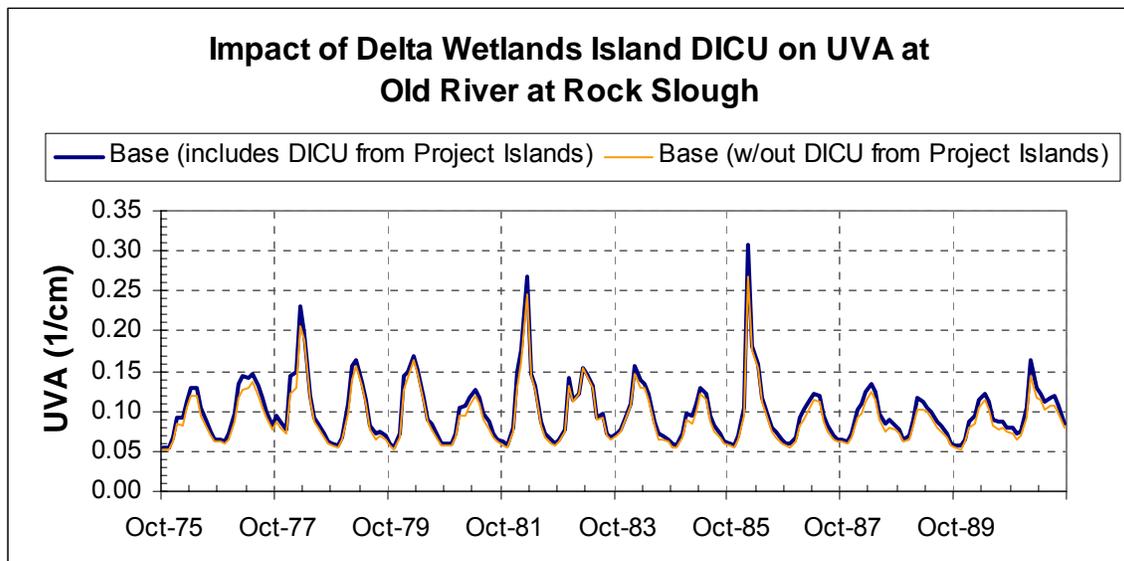


Figure 55: Effect of DICU around the Delta Wetlands Islands on Old River at Rock Slough.

As with the *DOC ag credit* (see Section 4.2) the benefit of changing the agricultural diversions and returns on the project islands at Rock Slough is shown above in Figure 55. This benefit, referred to as the *UVA ag credit*, was found to be relatively small at all four of the intake locations.

Figures 56, 58, 60, and 62 illustrate the sensitivity to UVA release measurements at each of the four urban intake locations: Old River at Rock Slough, Old River at the Los Vaqueros intake, the State Water Project intake at Banks Pumping Plant, and the Central Valley Project intake at Tracy. In the base case, the periods of high UVA for all of the locations coincided with the high runoff periods that start in the spring and sometimes continue through early summer. The summer releases from the project islands resulted in UVA measurement increases for all three bookend levels. At Rock Slough (see Figure 56), the process of releasing water during the summer at the mid and high bookend UVA values, effectively increased the number of times over the 16-year period that the UVA

measurement at Rock Slough reached above 0.20 cm^{-1} . However, these higher measurements did not exceed the winter monthly maximum from the base case. At the other three intake locations, the summer project water did exceed the base case monthly maximum. Furthermore Los Vaqueros, the State Water Project, and the Central Valley Project were much more sensitive to UVA releases from the project islands. Rock Slough is located to the north of the Bacon Island discharge location, and given that the predominant flows on the Old River tend to be heading south, Bacon Island releases have less of an impact on Rock Slough.

The maximum monthly averaged UVA at these four locations over the entire 16-year planning study is summarized in Table 11. As shown in Figure 10, the monthly agricultural UVA measurements from all of the Delta islands range from around 0.25 to 1.60 cm^{-1} . For all three bookend simulations, the largest maximum monthly UVA measurements were observed at Los Vaqueros. The maximum monthly change in UVA measurement is shown in Table 12. Again the largest changes were observed at Los Vaqueros, which is closer to the project islands than the SWP and CVP intakes.

Table 11: Maximum monthly averaged UVA (cm^{-1}) measurements.

<i>Location</i>	<i>Base</i>	<i>Low</i> (0.289 cm^{-1})	<i>Mid</i> (0.686 cm^{-1})	<i>High</i> (1.348 cm^{-1})
Old River at Rock Slough	0.309	0.263	0.263	0.267
Old River at Los Vaqueros intake	0.308	0.296	0.461	0.848
State Water Project	0.189	0.187	0.311	0.517
Central Valley Project	0.182	0.182	0.286	0.467

Table 12: Maximum monthly change in UVA (cm^{-1}).

<i>Location</i>	<i>Low - Base</i>	<i>Mid - Base</i>	<i>High - Base</i>
Old River at Rock Slough	0.022	0.079	0.174
Old River at Los Vaqueros intake	0.078	0.310	0.698
State Water Project	0.043	0.162	0.368
Central Valley Project	0.043	0.146	0.323

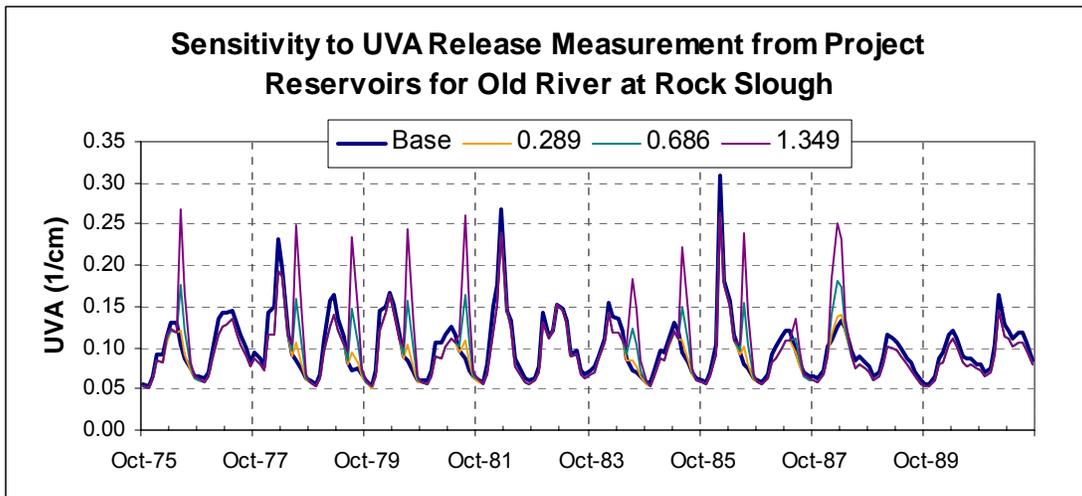


Figure 56: Time Series of UVA for Old River at Rock Slough.

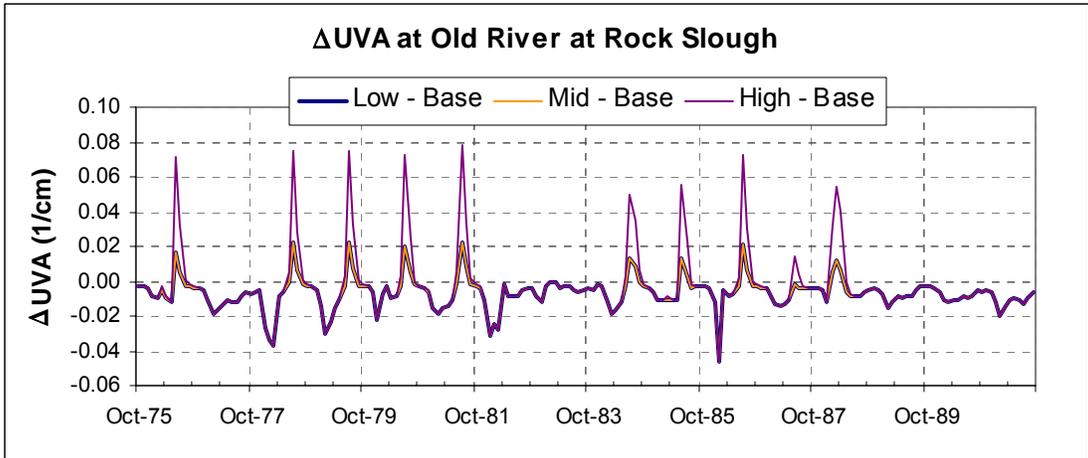


Figure 57: Time Series of Change in UVA (Alternative – Base) for Old River at Rock Slough.

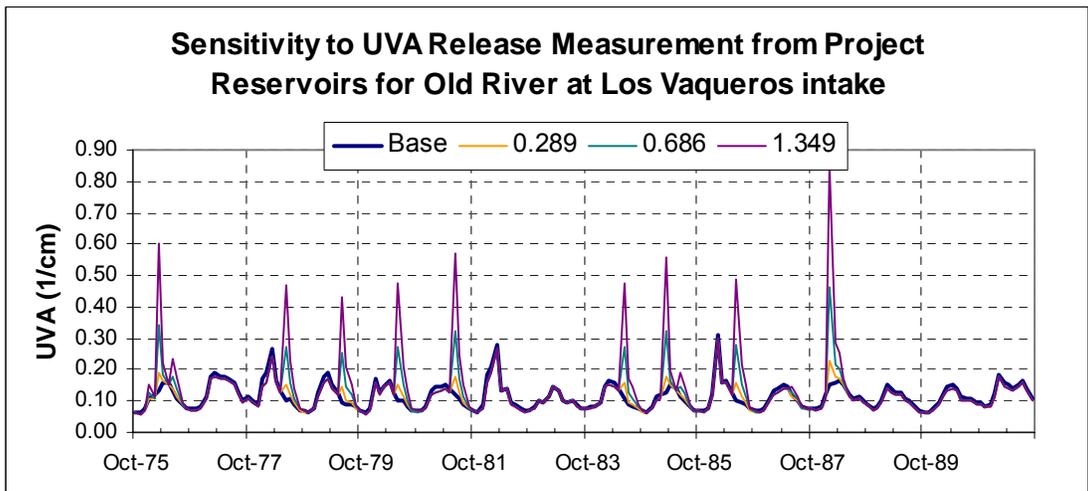


Figure 58: Time Series of UVA for Old River at Los Vaqueros intake.

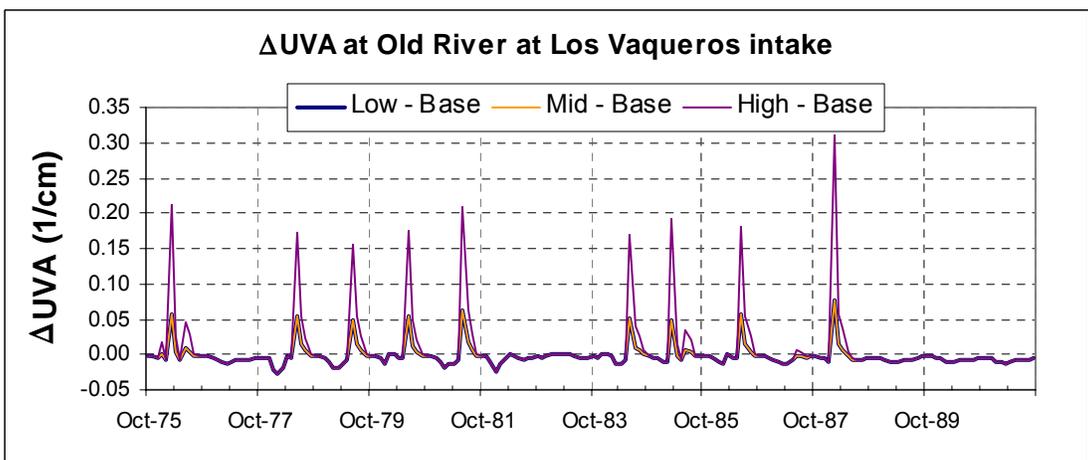


Figure 59: Time Series of Change in UVA (Alternative – Base) for Old River at Los Vaqueros intake.

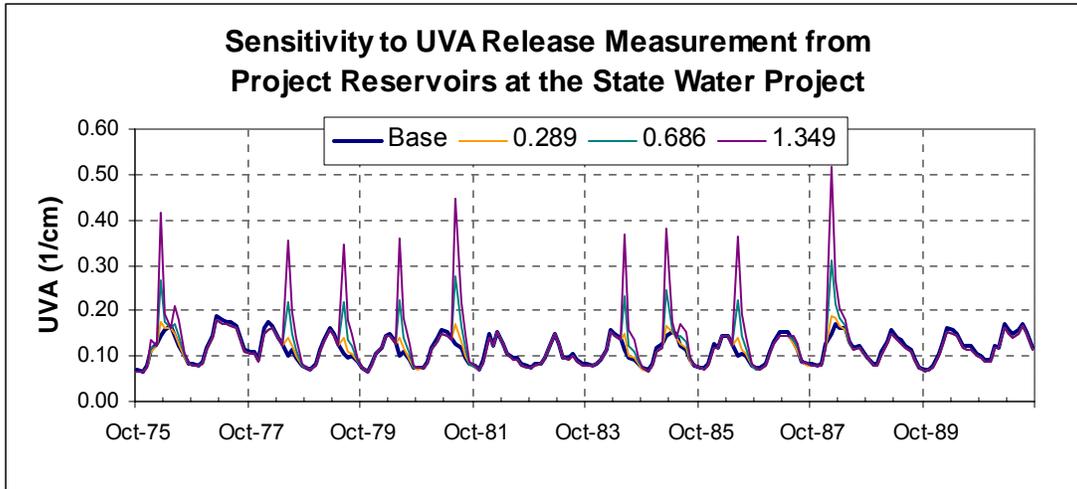


Figure 60: Time Series of UVA for the State Water Project.

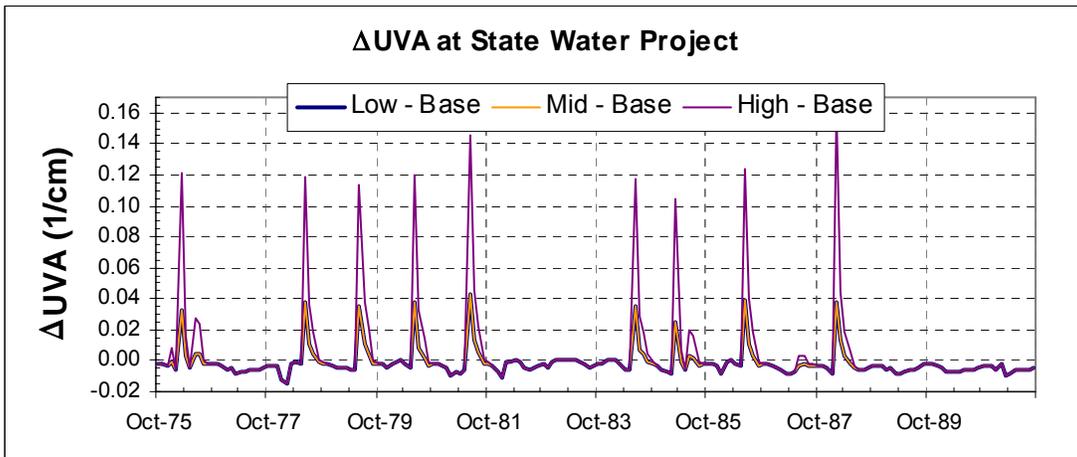


Figure 61: Time Series of Change in UVA (Alternative – Base) for the State Water Project.

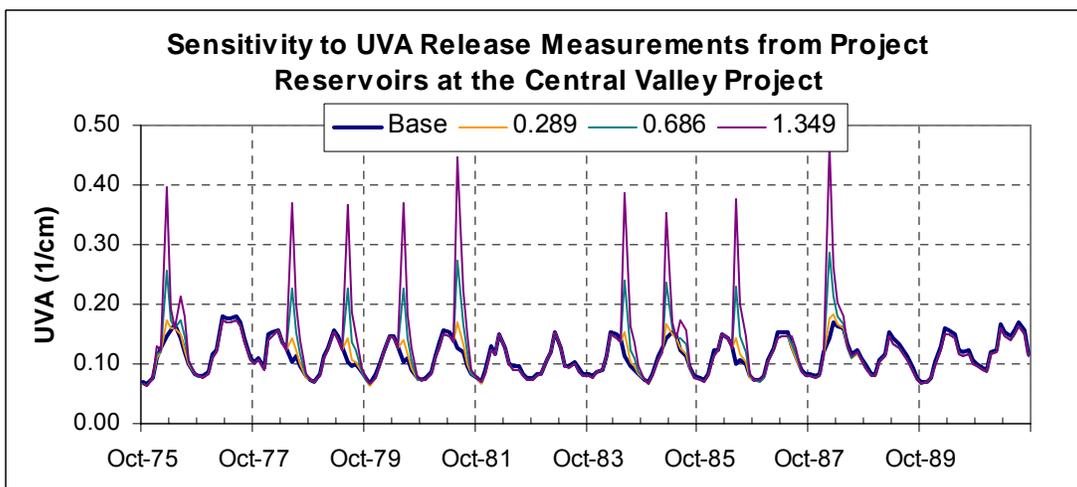


Figure 62: Time Series of UVA for the Central Valley Project.

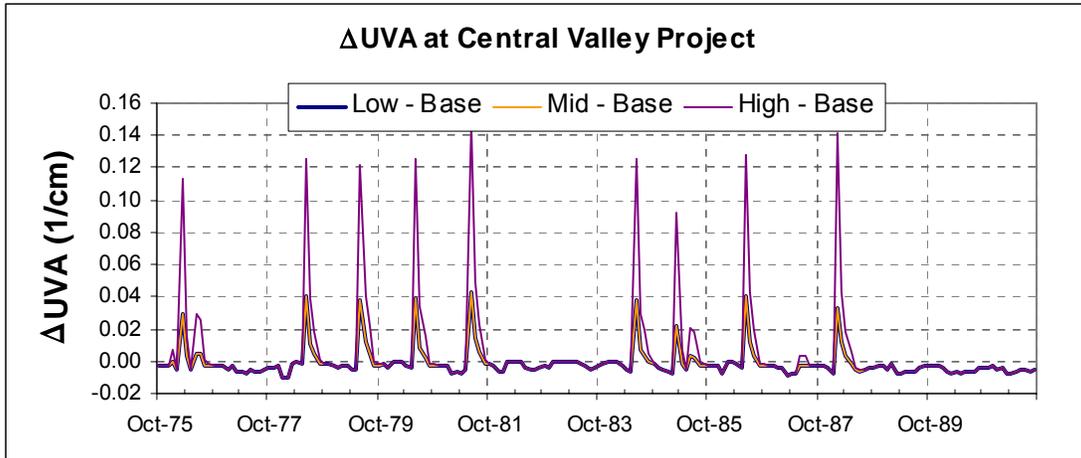


Figure 63: Time Series of Change in UVA (Alternative – Base) for the Central Valley Project.

4.5. TTHM

According to the WQMP Total Trihalomethane (TTHM) formation is limited 64 ug/l. For periods when the modeled base case exceeds this 64 ug/l standard, the WQMP permitted a 5% increase above the standard (3.2 ug/l) due to operation of the Delta Wetlands project.

Using the EC, DOC, and UVA results from each of the DSM2 bookend simulations, the TTHM for Old River at Rock Slough was calculated as:

$$TTHM = C_1 \times DOC^{0.228} \times UVA^{0.534} \times (Br + 1)^{2.01} \times T^{0.48} \quad [\text{Eqn. 5}]$$

where

TTHM = total trihalomethane concentration (ug/l),

$C_1 = 14.5$ when $DOC < 4$ mg/l,

$C_1 = 12.5$ when $DOC \geq 4$ mg/l,

DOC = raw water dissolved organic carbon (mg/l) from DSM2,

UVA = raw water ultraviolet absorbance at 254 nm (1/cm) from DSM2,

Br = raw water bromide concentration (mg/l) as converted from DSM2, and

T = raw water temperature.

The bromide concentration at Rock Slough was developed by Bob Suits (2001) from regressions of observed (1) Contra Costa Canal Pumping Plant #1 Chloride data to Contra Costa Canal Pumping Plant #1 Bromide data, and (2) Contra Costa Canal Pumping Plant #1 Chloride data to Rock Slough EC. The bromide relationship used in Equation 5 for Rock Slough is:

$$Br_{Rock\ Slough} = \frac{EC_{Rock\ Slough} - 118.7}{1040.3} \quad [\text{Eqn. 6}]$$

The bromide relationship for the remaining urban intake locations used in Equation 5 is:

$$Br = \frac{EC - 189.2}{1020.77} \quad [\text{Eqn. 7}]$$

The monthly average water temperatures used in Equation 5 are shown below in Figure 64. These temperature data came from Contra Costa water treatment plant averages, as provided by K.T. Shum of Contra Costa Water District (Forkel, 2000b).

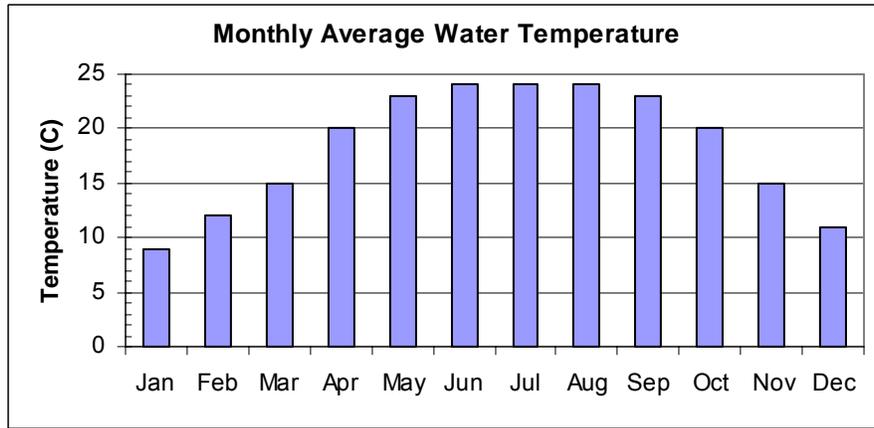


Figure 64: Monthly Average Water Temperature.

Using Equations 5, 6, and 7, the TTHM for all the urban intakes was calculated for the entire 16-year simulation period. The sensitivity to DOC release from the project islands is shown in Figures 65 – 72. The 64 ug/l WQMP standard is exceeded in the late fall and early winter months both in the base and alternative scenarios as is shown in Figures 65, 67, 69, and 71. This is consistent with the EC results discussed in Section 4.1, since bromide (which is directly related to EC) is a principal contributor to TTHM formation.

Table 13: Maximum monthly averaged TTHM (ug/l) concentrations.

<i>Location</i>	<i>Base</i>	<i>Low</i>	<i>Mid</i>	<i>High</i>
Old River at Rock Slough	131	124	124	124
Old River at Los Vaqueros	123	119	119	131
State Water Project	100	96	96	110
Central Valley Project	93	90	90	107

The maximum monthly TTHM concentrations for each of the simulations are displayed in Table 13. Since the EC and water temperature used to calculate the level of TTHM formation for each of the three bookend scenarios was the same, the differences in the TTHM concentrations is a function of the DOC and UVA values. For the Contra Costa intake at Old River at Rock Slough, the operation of the Delta Wetlands Project actually appears to decrease the maximum monthly TTHM concentrations. There was no significant difference between the three scenarios, but this is due to the fact that the DOC and UVA values at Rock Slough were very similar. For the other three intake locations, the high DOC and UVA release scenario results in increases in the maximum monthly