

Date: August 28, 2023

To: Alex Rabidoux
Solano County Water Agency

Regarding: Putah Creek Accord - Unjustified Claims (Jacinto Ecological Applications article)

Conclusions from page 13 of the Jacinto Article: *“One of the surprising aspects of the Putah Creek story has been how strong the assemblage response was from relatively minor changes in the flow regime, perhaps notably from increased cold-water base flows during summer. This research therefore provides an intriguing case study into the potential for broader restorations of freshwater communities with perhaps just small tweaks to functional flow regimes.”*

Background:

Fish require more than water. They need “species appropriate” benthic structure, gravel, refugia and food resources. While I cannot deny the addition of water to a “functional” freshwater system is basically a positive, simply adding water to a ditch or pipeline does not make a restored waterway. The recent article **“Increasing Stability of a Native Freshwater Fish Assemblage Following Flow Rehabilitation.”** (Jacinto 2023) was at least negligent and mostly misleading by implying that the on-going restoration of Putah Creek and the salmon run are due to the Putah Creek Accord. “Restoration Activities” were barely mentioned with no offering of the description and/or the primary effects of restoration on biota versus the Accord. Good Science and pro-



Winters Car Bridge: 1/10/2007: Image from the Winters bike bridge facing upstream with the original Winters car bridge in the image. This is an example of the “Accord” water flowing through an area that is distinctly poor habitat for salmonids and aquatic biota. Ken W. Davis image

fessional ethics demand that important subjects such as the one addressed in the Jacinto article consider all available facts when disseminating information to other parties that might consider implementing restoration efforts. Transparency and disclosure are especially important when articles are published in a scientific journal. Articles are suppose to be scientific, not agenda or legacy driven.

To date I have encountered several articles that cited the Jacinto article claiming the Accord was responsible for the “return” of Chinook salmon to the Putah Creek system. I contend that is problematic for Putah Creek and other waters as the emphasis will be on the “Accord Water” rather than restoration that has certainly improved spawning areas and facilitated some of the other claims in the named article. Plus, the larger number of salmon started showing up in 2014 after NAWCA and the Scarification Project were initiated in 2013 and 2014. The Accord was legally implemented with required flow in 2000. That’s fourteen years without significant success regarding salmon. It should also be noted that CDFW had released a significant number of juvenile salmon in the Sacramento Delta which possibly strayed into Putah on their return to freshwater. I argue that a couple of very important projects had more impact on salmon spawning than the Putah Creek Accord. **Fish require more than water.** I will briefly address those projects below with images and captions. This situation might have been prevented with better communication and a clearer explanation of the improvements and associated projects in Lower Putah Creek.

Accord Water in 2008



5/7/2008: Pickerel Section prior to the construction of a W-Weir in 2009. This is very close to the Putah Diversion Dam the upstream source of “Accord Water” which had very little effect on the biota prior to the construction of the Pickerel weir, the NAWCA 2 project, and scarification actions at this site that improved flow regime. Ken W. Davis file image.

Pickrel Weir: Constructed in 2009



3/24/2004: View of Putah Diversion Dam from the site of the Pickrel Weir before construction of the weir. Ken W. Davis image



Image taken 7/3/2015: The Pickrel Weir was constructed in 2009. The natural scour just below the weir created a situation similar to mechanical scarification that has proven beneficial for salmon spawning. Information suggests that several salmon spawned in the small section in 2012 amid a sediment-laden waterway. They were undetected. The following spring, thousands of juvenile salmon were found 75 feet downstream (and much further) from the weir on May 1, 2013. I have also documented that the weir had a very positive effect on benthic macroinvertebrates. Ken W. Davis image

Dry Creek Realignment: 2006:



Bertinoia reach: Image from 2005 prior to the creek realignment away from Putah Creek Road. This is Putah Creek Accord water flowing through very poor habitat. Water alone did not facilitate salmon spawning. Ken W. Davis image



Bertinoia reach in 2016: Section after the reach was realigned and scarified. Salmon have routinely spawned in this section on an annual basis since 2014. Reducing embedded cobble has increased the macroinvertebrate community density and diversity. Ken W. Davis image

Winters Putah Creek Park: 2011



Winters Putah Creek Parkway on 10/4/2011: The images show part of the organized formal fish rescue just downstream of the Winters Bike Bridge. The “ditch” that was constructed in Phase One has remained a ditch until this day. Enhancement remains necessary. Ken W. Davis image.



Winters Parkway in 2016: Phase One remains unavailable for salmon spawning due to the width and depth of the creek and lack of benthic structure. Accord water cannot make a difference when the waterway remains marginal despite great intensions. Ken W. Davis image

North American Wetland Conservation Act Project: July 1, 2013



Image June 2013: Rick Fowler in the Morales section prior to the NAWCA 2 Project. Another example of “Accord Water” flowing through an area of very poor habitat. The section was inundated with Arundo and blackberries before the bank on the right (south) side of the creek was lowered. See images below.
Ken W. Davis images



Morales Scarification Project Site on 12/24/2018: Image close to the same site as the image above by using GPS data to locate the site. This is after NAWCA 2 restoration with a flood plain on the right. It has been a very active salmon spawning area after NAWCA 2 and scarification. This is another example of the Accord Water before and after significant restoration actions. Note, this restoration cannot be considered reconciliation ecology as suggested in the article. I find it difficult to claim that the Accord was solely responsible for the some of the claims in the Jacinto article. We need the water flow, but acknowledging specific restoration actions is paramount to accurately and professionally reporting success.
Ken W. Davis image.

North American Wetland Conservation Act Project: July 1, 2013



Image August 21, 2013: Shows excavator working to lower the south bank of Lower Putah Creek to create a functional flood plain. This section did not have appropriate spawning areas prior to the NAWCA 2 project and scarification. Ken W. Davis image.



Image November 1, 2018: The Morales section after scarification and riparian planting. Salmon have spawned in this section every year since 2014 post scarification. Ken W. Davis images

Scarification Project: 2014



Lower Putah Creek - Morales Section: Image shows the creek **DURING** the NAWCA 2 Project. Note the bare dirt on the upper left of the picture. The slope was eventually lowered to facilitate flood plain conditions. Ken W. Davis image



Morales section: Shows LPC after NAWCA 2 Project and scarification. The image is close to the exact site shown in the image above. Ken W. Davis image



Morales section: Shows a salmon redd photographed in 2010 in the Morales scarification section. This is the ONLY salmon redd I found in the 2010 spawning period. Note the redd is very wide and shallow, typical of salmon redds in Lower Putah Creek prior to the scarification project. Scarification facilitates female salmon to dig deeper and construct “healthier” redds if the appropriate gravel is available. Ken W. Davis image

Reconciliation Activities?

Excerpt from Jacinto article: *“However, while our study revealed how reconciliation activities (Rosenzweig, 2003) have been highly successful in rehabilitating fish communities in the upstream portions of the study area, these efforts have been much less successful in downstream reaches.”*

I question the term “reconciliation” when referring to the restoration actions taken in the upstream portions of Lower Putah Creek as it is misleading with the citation to Rosenzweig, 2003. It’s implying that we used reconciliation ecology techniques to improve salmon spawning sections. Rosenzweig (*Win-Win Ecology: How the Earth’s Species Can Survive in the Midst of Human Enterprise*) is really clear about the differences between reconciliation and traditional restoration. It appears that the authors were representing something that did not occur or labeling something they did not understand. That said, it’s fodder for discussion, debate, and communication.

Discussion:

In December 2004, I watched a couple of Chinook salmon attempt to spawn in a section near Yolo Housing. The benthic condition was inappropriate and there was nothing in the area that was suitable spawning substrate. Many salmon eggs tumbled downstream, over embedded gravel and claypan and eventually ended up in my invertebrate net. A similar event happened (2010) in the Morales section when I watched a female salmon dig a redd in a heavily embedded section. Her redd was close to 15 feet wide and maybe 4-5 inches deep (Image above). While I’m certain that a few eggs survived it certainly was not a healthy redd in an area



that desperately needed appropriately-sized gravel and other benthic structure. Because of the width and depth of the site, the flow was very slow and did not facilitate a condition that would protect salmon eggs and alevin. The Accord water would have benefited the salmon if the site had appropriate width, depth, and benthic conditions. Severely embedded gravel is not a healthy benthic condition.

Numerous claims about the Putah Creek Accord being primarily responsible for the “return” of Chinook salmon to Lower Putah Creek are certainly misleading and potentially harmful as **bona fide** restoration actions and successes are wanting. Numerous salmon spawning projects on the West Coast have failed for various reasons including giving attention only to the physical aspects of the waterway and not considering the biota and associated requirements.

The public and other interested parties deserve to have accurate information about the Accord and restoration actions in Lower Putah Creek. The Accord is one of several very important policies, actions, and technologies that are improving conditions in Lower Putah Creek. That said, many sections need “enhancement actions” with properly sized gravel, additional benthic structure and refugia for juvenile salmon and trout.

My intent in presenting some of the restoration history with accompanying images is to at least begin an honest dialog about restoration in Lower Putah Creek and formally identifying what has been successful and what has not. The “Field of Dreams “ restoration mantra: “**Build it and they will come**” is certainly not valid and has caused the failure of salmon restoration projects (Hilderbrand 2005). You cannot build a ditch, fill it with water and expect salmon to successfully spawn in such inappropriate sites. **Fish require more than water.**

Respectfully submitted August 28, 2023:

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REFERENCES:

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