



## **Delta Independent Science Board Reflections**

August 24, 2020

The Delta Independent Science Board (Delta ISB) was established in 2010, as an integral component of the Delta Reform Act's reorganization of Delta science and management efforts. The Delta ISB provides an independent perspective and recommendations to ensure that the best possible science is being developed and applied to the management questions in the Delta. With the Delta ISB having just recently reached its ten year anniversary and many of the initial Delta ISB members completing two five-year terms on the Delta ISB, the Delta ISB is going through a major transition. Six new members are starting their terms in September.

Given this transition, the outgoing Delta members have provided some valuable reflections on their terms on the Delta ISB. Having interacted closely with the Delta ISB over the last three years, I deeply appreciate how committed the members are to improving conditions within the Delta. Their reviews, letters, panels, and more have all contributed to raising the bar for how we conduct and use science in the Delta: from incorporating social science and engaging on "forward looking" science that goes beyond current management issues, to evaluating and improving the monitoring programs and the Interagency Ecological Program (IEP). The insights and recommendations that the outgoing members provided here serve as a valuable guidepost for the incoming members of the Delta ISB and for all of the Delta science enterprise.

Thank you to all of the outgoing members for your contributions over the years, and welcome to the new members who are joining the Delta ISB. We are excited to have such outstanding new members join the Delta ISB, and we look forward to the continued work of the Delta ISB.

Sincerely,

A handwritten signature in black ink, appearing to read "John Callaway".

John Callaway, Ph.D.  
Delta Lead Scientist  
August 31, 2017 to July 31, 2020

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## **Elizabeth Canuel, Ph.D.**

Member, September 1, 2010 to August 31, 2020

Chair, June 1, 2019 to August 31, 2020

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Serving as a member of the Delta Independent Science Board (Delta ISB) over the past decade has been a rewarding experience and one of the highlights of my career. I've been fortunate to work with fantastic colleagues on the Delta ISB, three Delta Lead Scientists, and the staff and leadership of the Delta Science Program and Delta Stewardship Council. Intellectually, I've enjoyed discussing, reviewing and providing guidance about the many science issues that affect the Delta and working with the great minds and rich experiences of my fellow Delta ISB members. Thank you for your generosity, and for adhering to the principles of shared scholarship and mutual respect that have become hallmarks of this board.

### **Lessons Learned**

I had no idea when I accepted appointment to the Delta ISB that it would provide such a tremendous growth experience. Work on the Delta ISB has expanded my views of science, given me new insights about building bridges across the science-decision-maker interface, and increased my appreciation for effective science communication and outreach. I've learned that "best available science" is not always good enough, especially in a system as complex and dynamic as the Delta. As a result, science must be responsive to rapid environmental change, and new findings must continually be built into our understanding of the Delta and decision-making. I've also learned the power of openness and transparency, gained insights about the value of working with stakeholders at the initiation of a research project rather than waiting until after completing a product, and that outreach and communication are essential ingredients for impactful work. I will take these experiences with me and use them in my future research projects as well as in my collaborations with resource agencies, stakeholders and colleagues.

### **Synergies and Shared Scholarship**

I learned that the Delta ISB is more than the sum of its individual members and their very impressive records of scholarship. The Delta ISB is about people – there are many excellent scholars in our communities, but it is rare to find the level of mutual respect, trust, dedication and ambition that has been characteristic of this board. We have not always agreed with one another, but we have always listened respectfully to each other and resolved differences in a professional and collegial way. On more than one occasion, we learned the value of the powerful synergies created through our training in very different disciplines, the different approaches and tools that we bring to the table, and "lessons learned" based on our experiences from working in systems outside the Delta. My advice to new Delta ISB members is to take full advantage of your diversity and maximize the many ways that you can complement one another to produce products that amplify the Delta ISB's impact and support strong science and decision-making in the Delta.

## **The Delta Science Program and Delta Stewardship Council**

I've had the pleasure of working with three excellent Delta Lead Scientists – Cliff Dahm, Peter Goodwin and John Callaway. I learned a lot from their very different leadership styles. Cliff – I appreciate the rigor you brought to the science enterprise and your willingness to test paradigms. Peter's leadership of *One Delta, One Science* was visionary. I gained tremendous insight from his ability to initiate and develop strong partnerships and build trust in the Delta community. He and Lindsay Correa demonstrated the power of dialogue between the Delta scientists, managers and stakeholder communities. John Callaway's leadership holds a special place for me because he has been the Delta Lead Scientist during my term as Chair. I have valued our very strong partnership and have tremendous respect for his openness, accessibility and approachability. I'm also very grateful to members of the Delta Stewardship Council, including Jessica Pearson, Susan Tatayon and Randy Fiorini for always being strong advocates for rigorous science in support of management in the Delta. Finally, I owe a debt of gratitude to Edmund Yu for the many ways he has supported the Delta ISB, and particularly for his assistance during my term as Chair. His steady hand, exemplary professionalism and attention to detail have been assets to the Delta ISB.

## **Gratitude to my Delta ISB Colleagues**

I want to end by thanking Dick Norgaard, Tracy Collier, Steve Brandt and Jay Lund for serving as Chairs of the Delta ISB. I learned a lot from each of you and tried to emulate your leadership during my own term as Chair. Over the past ten years, I have had the good fortune to work closely with Vince Resh, Dick Norgaard and Tracy Collier on several reviews. Thank you for your wisdom and friendship, and for enriching my experiences on the Delta ISB. John Wiens and Brian Atwater contributed superb writing skills and the ability to synthesize and “massage” our often disparate and contradictory comments. Time and again, you were masterful in writing text that was inclusive of our broad opinions and much more eloquent than our individual contributions. I also want to thank Joe Fernando and Tom Holzer for bringing “fresh perspectives” to the Delta ISB and adding depth in the physical and earth sciences. Special thanks to Joy Zedler for her friendship and support. I appreciate your encouragement of adaptive field experimentation in Delta restoration projects and your many reminders to incorporate “lessons” from Native American approaches to early land use. Thank you for a wonderful decade. I look forward to watching ongoing and new members take-up the reins and move forward into the next chapter of the Delta ISB.

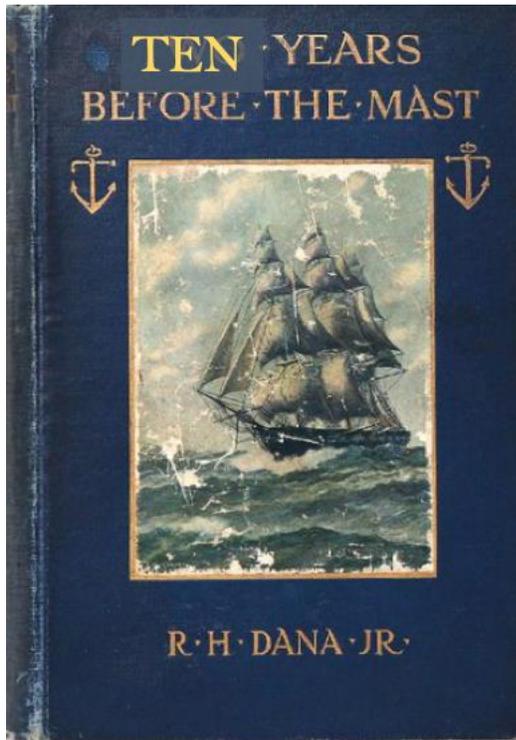
## Tracy Collier, Ph.D.

Member, September 1, 2010 to August 31, 2020

Chair, June 1, 2013 to May 31, 2015

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### Reflections on service on the Delta Independent Science Board, or



Looking back on the ten years spent on the Delta Independent Science Board (Delta ISB), I have to concur with other members, this was a highlight of my career. The thorny<sup>1</sup> problems we worked on, the (usually) great thinking that went on during our meetings, on calls, and over social occasions, and the camaraderie, all contribute to that conclusion.

What made these past ten years so fulfilling? Why was this board seemingly so different from almost any other board I've been part of? If we're being honest, a big part of it was that the members were compensated for their time, incentivizing individual contributions. But it was more than that. Egos were checked at the door, and people respected each other's right to speak, and think out loud. I believe that having all meetings recorded, and open to the public, contributed to that—nobody wanted to look like a jerk. But even during informal social events, or meetings or phone calls between 2 or 3 members<sup>2</sup>, people were respectful, they listened, and they engaged. It might be that we were just lucky, but that seems unlikely. Now that we have more social

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<sup>1</sup> "Wicked" is overused in the Delta, methinks.

<sup>2</sup> All done in accordance with Bagley-Keene!

scientists involved, both on the Delta ISB and in the Delta Science Program (DSP), it would be good to systematically evaluate reasons for the (self-proclaimed) success of the first 10 years of the Board. Maybe we should see how the DSP's assessment of the Delta ISB, led by Lauren Hastings, turns out first?

What advice do we give to incoming and continuing Delta ISB members? That seems somewhat pretentious, but a few things come to mind.

***Be mindful and protective of the independence of the Delta Science Program.***

The Delta ISB doesn't have authority over the DSP, but we need the DSP to be regarded as objective and independent by all players in the Delta. Yes, the DSP reports to and is paid by the Council, and the Council has needs of the DSP. But the DSP should be able to push back, if needed, on requests that might undermine, or appear to undermine, their independence. The Delta ISB can help them do that. We have a new Lead Scientist, and a fairly new Executive Officer for Science, and they both are mindful of this. But they might need assistance, or even reminding, once in a while.

***Be respectful and very supportive of DSP staff.***

We need the support and good will of DSP staff, we need them to **want** to make the Delta ISB successful. It's a bit of an odd partnership, but I've seen similar partnerships before. In this case, with a substantive proportion of Delta ISB members having little or only moderate familiarity with the Delta and its issues, the DSP has an outsized role compared to other systems I have worked with. They are your best friend(s). Mentor the staff one on one, informally, if anybody asks for advice. Or sometimes even if they don't ask, but you see an area where you might be able to provide good advice.

***Be mindful of the needs and drivers of the Delta Stewardship Council.***

The Delta Stewardship Council deals with intense scrutiny from all sides, and they have an extremely difficult job(s). They support science in the Delta with conviction. But they will sometimes ask for your help on issues you may not think are appropriate for the Delta ISB, or on timelines you think unreasonable. Don't worry about pushing back, but try to imagine yourself in their shoes before doing that.

***Don't expect what you write to be recognizable in the next draft.***

This is part of checking your ego. We're all smart people, with very different writing (and speaking) styles. Figure out who are the really good writers, and if you're not perhaps one of them, study and learn (I tried). But if your ideas are not being heard or considered, speak up.

***Try not to rub the sharp edges off.***

The Delta ISB weighs in on contentious issues, and is expected to make important contributions. Sometimes we must call things like they are, and point out unpleasant truths, often to people we know well and respect. But in the work to achieve a consensus Delta ISB product, we tend to mute our criticism, even if well justified. Try

not to do that. A corollary to this is, if you do have sharp edges in your upcoming products, try your best to provide constructive solutions, or at least paths to solutions.

***Enjoy the experience!***

Those of us leaving the Delta ISB all are leaving with great memories, and we have all greatly expanded our knowledge of other disciplines. We will miss each other, and yes, we'll miss Sacramento (maybe not so much in July). Feel free to contact any of us, with any questions, or seeking context.

## **Richard Norgaard, Ph.D.**

Member, September 1, 2010 to August 31, 2020

Chair, September 30, 2010 to May 31, 2013

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### **Reflections on the Delta ISB's first ten years and guidance for new members**

#### ***Keep the Delta ISB and the Delta Science Program independent***

- The Delta ISB is an independent entity of the state. The new board should cleanse its bylaws of the extraneous upfront material about the Council for it intimates that the Delta ISB works for the Council. The Council approves the appointments of board members like the U.S. Senate confirms selections for the Supreme Court, and that is the end of the relationship. The Council can request assistance from the Delta ISB as it can from any other agency.
- There have been board meetings where the Council has tried to present “marching orders” to the board, but the board has consistently stated the Council must make a request. Similarly, a request is a request, and the board should handle it as it sees fit. Keep the relationship clean.
- The Delta Science Program also needs to maintain its status as a neutral arbitrator of science in the Delta while its own work is also independent. The Delta Science Program needs support in maintaining its independence and not seen as an agency of the Council.

Independence is important, and yet the Delta ISB is absolutely dependent on briefings from the Council and the Delta Science Program as well as from other agencies with respect to the details as to what is going on. Close teamwork is essential, and yet the board needs to “back off” as it does its assessments or other reports. Camaraderie is key to teamwork and learning from others, and yet there must be independence as well. Again, one’s own assessment of the science through reading and listening to presentations at science meetings is essential.

#### ***Be strategic on the foci of assessments***

Search for topics for which an assessment from the board can improve Delta science and its effectiveness for management. In my judgment, the board has wandered too many general assessments with too broad and general recommendations. Being strategic entails tuning in with Delta science through extra reading and going to IEP annual meetings and the Bay-Delta science meetings held in either Sacramento or Oakland each year and “looking” for issues on which some direction from the board could help.

#### ***Shorten the Prospectus Time***

I initiated the idea that each review should start with a prospectus to make sure the writing team was meeting the expectations of the Delta ISB as well as so that the

prospectus could be distributed and posted so that the Delta science and management community could see and comment on what the Delta ISB proposed to do. The prospectus has turned into a graduate student's thesis proposal needing the approval of ten professors with pot shots being taken from all corners of the Delta Science and management community as well as stakeholders.

### ***Shorten Assessment Time***

Members of "Writing Teams" need to be more active in engaging with each other. Sometimes many days go by before a response happens. Each team member needs to effectively engage on issues and respond to questions raised by other team members in a timely manner or apologize that they are unable to do so or state that you have nothing to say, which is perfectly legitimate.

In ten years, we have never had a board member write a dissenting opinion! An ethic arose that a dissent among scientists should be an extremely rare event. There is more solid information in a tightly written report and a precisely drafted dissenting opinion or two than in a long, dull mushy report that is written to not offend any board members. I recommend quicker, sharper reviews, with occasional dissents, or simply different perspectives, appended.

### ***Get out into the Delta, get a feeling for how it "works", Meet with the People, but also interact with the stakeholders.***

Experiencing the Delta and its users for real is critical.

## **Vincent Resh, Ph.D.**

Member, September 1, 2010 to August 31, 2020

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### **Reflections on my term on the Delta Independent Science Board**

My final month as a member of the Delta Independent Science Board (Delta ISB) is certainly bittersweet. I am sorry that I'll be leaving the stimulating discussions and the important work that the Delta ISB has done, but pleased by the addition of outstanding new members that will bring fresh perspectives to Delta issues. I have enjoyed my time with the members of the Delta ISB and Delta Science Program very much—I've learned a lot not just about science but also the links of science to policy and what make group dynamics effective.

Over the past 10 years, we have all spent a lot of time in Sacramento as our meetings often occur over a two-day period, and sometimes even longer. If life ever returns to normal, I expect that all of you will enjoy your time here as well. My stays were made much more enjoyable by getting to know Sacramento with my fellow Delta ISB members and the Lead Scientists. We often spent post-meeting evenings with Delta ISB members and Delta Stewardship Council leaders at dinners with long interesting and far-ranging conversations. These sometimes included a stop at the Crocker Art Museum and its Thursday evening ArtMix social gatherings, or even attending a baseball game of the Sacramento River Cats baseball-team. I hope that the new Delta ISB members partake in some of these activities during your terms as they were a major factor in building the excellent camaraderie that this board has had for the past decade.

It took a long time for many of us to get familiar with the geographic layout of the Delta and I think that this is also going to be a problem for many of the new members who are not familiar with the complex interplay of islands, levees, and channels that occur there. Field trips really helped in understanding the Delta and I hope that they will be continued when travel restrictions are lifted.

What do I see helping the new members get acclimated to the Delta ISB and Delta science culture? I think that Delta Science Program's upcoming assessment, led by Lauren Hastings, of how we have done our reviews and evaluating their impact is going to be very important and useful. Each of the reviews were essentially done by a few members—referred to as Lead Authors or the Writing Team—but then drafts were brought back to the Delta ISB. When the whole Board participates in interviews, this certainly helps broaden awareness and understanding of complex topics.

The comments made by Delta ISB members that were not involved in the reviews were very helpful, especially in preparing the prose of the reviews. However, in terms of this process, I think that the long process of rewrites sometimes "watered down" our recommendations, along with dragging out the process. I know that the Delta Science

Program assessment of how we do reviews is considering alternatives to streamline the process and these should be considered carefully.

In the past 10 years, I think that two of our reviews have had major impacts. Ironically, both evoked a lot of disagreement among Delta ISB members when they were initially discussed and they almost didn't happen. The first was "Delta as Place" review. Today, Delta as place has received more emphasis as the third component of the coequal goals along with water supply reliability and ecosystem protection. The second was the emphasis on science needs in the Delta in times of rapid change. The lesson learned from these two experiences is that the Delta ISB members should not shy away from controversial issues and that the Delta ISB members should continue to push for the topics that you believe are important. These difficult topics are the ones that may end the complacency and business-as-usual attitude that's often prevalent in the Delta. I also hope with a doubling of the number of social scientists on the Delta ISB that new reviews around timely topics—especially around governance issues—will receive increased attention.

There has always been the issue of the Delta ISB's independence. The Delta Science Program and the Stewardship Council often have expectations of us that don't always fit either our legislative or self-defined roles. I think the continuing and new Delta members have to be watchful on this issue or our credibility will be lessened. We can't be seen as just an extension of the Delta Stewardship Council or Science Program.

All of the California Sea Grant State fellows that we had working with us on our reviews have been very helpful in completing these reports. The role that support staff has played in the Delta ISB's activities cannot be overestimated. Staff, such as Edmund Yu, is always willing to help and go beyond what is expected. Karen Kayfetz, the supervisor of our support staff, and her predecessors have been helpful to us as well.

The Lead Scientists we've had in the last decade—Cliff Dahm, Peter Goodwin, and John Callaway—have always provided insights about what was going on in the broader scheme of issues in the Delta. It was a privilege to get to know them and to work with all of them. I would like to single out one Board member who left a few years ago, Dr. Brian Atwater of the US Geological Survey. His contributions to our understanding of levees and seismic activity, along with his superb writing and editorial skills, were a major factor in many of the Delta ISB's successes.

Finally, I want to mention that the quality of the young people currently being hired by the Delta Science Program is excellent. This may reflect the shifts in the job market to a certain extent but I think it really represents a commitment to public service. I am very encouraged by this trend.

In conclusion, I have really enjoyed my time on the Delta ISB and I am sure that the new members will enjoy it as well. I very much appreciate the opportunities that I had being among excellent scientists and thinkers that served on the Delta ISB with me for the past decade.

## John Wiens Ph.D.

Member, September 1, 2010 to August 31, 2020

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### Reflections on Ten Years on the Delta Independent Science Board

When Cliff Dahm asked, 10 years ago, whether I'd be interested in serving on the Delta Independent Science Board (Board), I said sure. He said it would be interesting and important, and it would take only a little time. He was right on the first two.

When I joined the Board, I didn't know much about the Delta; to be honest, I didn't even know where it was. Moreover, I'm a terrestrial ecologist who studies birds, and the Delta is (mostly) about water and fish. But I've learned. I've learned from the sometimes-overwhelming reports, assessments, and documents we reviewed. I learned even more from the people who shared their perspectives and feelings about the Delta with us: other scientists, water managers, agency personnel, farmers, conservationists, long-time residents of the Delta, and the concerned public. I've learned that the Delta is a cauldron of swirling interactions: land with water, tides with river flows, droughts with deluges, non-native with native species, water quality with availability, upstream with downstream. Such interactions are the stuff of ecology. But over it all are the interactions of people with the environment and among one another. These are what make the Delta so interesting, and so vexing. In the Delta, science cannot be separated from people and their actions, priorities, and conflicts.

Being on the Board has also given me the opportunity to know and learn from some terrific people. My fellow Board members, past and present, are all excellent scientists, of course. They have brought diverse skills and ways of thinking to our discussions and reviews. But what has been extraordinary is the degree of collaboration and mutual respect, the willingness to listen and contribute, the dedication, and the complete absence of egos that so often come to dominate such gatherings. The dynamics and personalities of the Board have made it a delight to delve into thorny issues together. And through it all the staff and leadership of the Delta Science Program have been there to help us (and keep us from abusing State laws and regulations).

So here are some parting thoughts, words of wisdom (or whatever) for the new and continuing Board members.

First, treasure your independence. Both the independence of the Board and the *perception* of its independence must be tenaciously guarded. Our independence has given us as much credibility as our science.

Second, although the focus of Board is and should be on science, this does not mean that the policy implications of science can be ignored. Understanding how the science may play out in policy increases the likelihood that the science will have an impact.

Third, the responsibility of the Board is to ensure that the science supporting management (adaptive or otherwise) of the Delta is timely and robust. But it must also be relevant, which means that the social and political context in which the science will be used must be considered.

Fourth, the Delta is changing, rapidly, from forces operating within the Delta and far beyond it. The Board has an important role to play in alerting the Delta community to future changes and helping people understand and cope with the growing uncertainties. Figuring out how to do that will be at the core of adaptive management of the Delta.

To all of you who've shared my time on the Board—Brian, Dick, Ed, Jay, Jeff, Joe, Joy, Judy, Liz, Mike, Steve, Tom, Tracy, Vince—thanks. It's been much, much better than "good enough."

## **Joy Zedler, Ph.D.**

Member, June 10, 2015 to June 9, 2010

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### **Delta ISB Farewell**

It has been an honor and a privilege to serve on the Delta ISB. I appreciated the opportunity to work with the brightest scientists in the field. I learned more than I delivered, but I brought a few key issues to the table— adaptive field experimentation to restore damaged wetlands, Native American approaches to early land use (Traditional Ecological Knowledge, reciprocity), and the role of the Ecological Society of America in addressing rapid environmental change. I continue to recommend that the Delta monitors and accept US-EPA's offer to expand their free field sampling as part of the National Wetland Condition Assessment Program (hint, hint).

When Peter Goodwin invited me to apply for the Delta ISB, I was eager to help identify the best available science. Achieving this worthy goal depended on frequent board meetings, writing reviews, reviewing the reviews, and support from talented staff. Many board members further immersed themselves in Delta science by attending regional conferences and workshops and getting to know those who do the science and develop the policies. Over my 5-year term, travel from Wisconsin became increasingly difficult for me. It was time to retire.

Thank you Liz Canuel, for being an excellent ISB chair. I thank Dick Norgaard, John Wiens, and Steve Brandt for thoughtful discussions of adaptive management and invasive species; Vince Resh and Jay Lund for contagious enthusiasm; Tracy Collier for wisdom in guiding science; and Joe Fernando and Tom Holzer for adding critical advice from engineering and physical science perspectives. Special thanks to John Callaway for leading the research program and to Edmund Yu for skillfully herding us cats.