

Eight years as an International Aquarium Congress delegate: Pursuing excellence in ocean awareness and conservation

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Abstract

This paper documents the participation of an International Aquarium Congress (IAC) delegate through three consecutive congresses over eight-plus years of participation. As the IAC represents a model for international community involvement with specific global phenomena – in its case, large publically accessible aquarium venues – case studies in delegate participation shed light on potential participation by others. Top-down and bottom-up processes take place within the IAC community, while trying to find a common ground for creating community effectiveness. Work on building and communicating that common ground takes place every four years at a congress meeting.

Introduction

Aquariums have had a core mission of presenting fish and educating the public about fish from at least as early as when an aquarium was built at the London Zoo in 1853. That aquarium was named *The Fish House*. Over time aquaria have become more adept at presenting a more authentic presentation of the environments in which fish live – an expanding variety of exhibits presenting marine and riverine habitats on and in our planet. Over time, exhibit presentations have ventured beyond fish toward presenting other aquatic animals, shore animals that feed upon water-based plants and animals, and even the geology and plants among which all that animal life exists. Advanced exhibits even present additional weather and climate components.

My interest in aquariums piqued the day I learned The Marine Aquarium at Norwalk was being planned as a lynchpin attraction that could sustain a gentrification of my Connecticut hometown's Washington Street. I had enjoyed growing up in a community that kept a dark secret to many at its core – a little piece of American ghetto that sent a shiver down the spine of the surrounding affluent communities. I had spent enough time down on Washington Street, bolstered by the comfort of having gotten to know a diverse group of public school classmates who lived near there, to feel I knew the place pretty well in 1980. Gentrification promised to be an interesting enough process to watch from a distance as I lived away from Norwalk for four years of college – and for years thereafter when the result of gentrification became familiar. I considered it wonderful that I could bring newfound friends in life home to explore my hometown with a sense of newness they'd also experience.

Before the news about the planned block long aquarium that one could walk within came to me, my prototypical image of an aquarium was a five-sided, elongated cube glass container in which a single person put water, fish and various trinkets sold by an aquarium store that specialized in home-based aquaria. I listed those on the list of things of great responsibility and accountability where death was a certainty

if discipline and attentiveness were not developed specifically for required tasks – the same list I listed automobiles on. I had taken an extra while before wanting to drive. That same hesitancy applied to the corpus of tasks that would keep fish healthy and alive. Given my interests in everything during the years of public school education, an aquarium seemed something highly risky to devote much time toward. I also had a sensitive side when it came to thinking about all the death that happens naturally in wild settings – one animal dies so another can live. I had found it hard to watch a neighbor feed his boa constrictor a mouse on occasion.

I also found that the world provides ample opportunity for a kid to abstract away that visceral sensitivity. If one shows the educational system that one is a willing student at devouring books that it wants you to read, and is a competent learner at retaining and injecting content one has read into forms of expression that demonstrate effective comprehension, one can gain quite an extensive knowledge base regarding phenomena in the world – without experiencing those phenomena directly. Then perhaps, the less one experiences them intimately, the more fluidly one can interchange them through analogy, metaphor, and substitution by enlarging one's vocabulary. If one spends the requisite time pursuing a mastery of numerical representation and analysis, phenomena become relationships to each other in fascinating ways. If one develops a systems engineering approach to exploring and describing the world, one gains privy to a great complexity of sub-phenomena that develop relationships within the concept of super-phenomena. The world can become a richer and richer place – especially with an active imagination. I have and continue to have no qualms with such an education. It's the one I know by way of my own life's journey.

In 2006 I became aware of the work The Ocean Project had been performing on behalf of making ocean conservation messaging more effective in the world's walk-through aquariums and aquatic installations at zoos and museums. I came to their work curious if my education and life experience would be of great potential service to their mission. I had learned, through working with ocean scientists and others who support ocean scientists, that the ocean and the health of the ocean is not on the minds of people to the level of consciousness it deserves based its contribution to quality of life. Given all the great knowledge and work ocean scientists had and were doing, there seemed to be an opportunity to be useful in getting their work known in relevant ways.

Conservation is about helping conserve the environment as it has evolved to be what it is today – at local and global scales. The ocean is as unique as the atmosphere in being one overarching planetary service to life. As a result, global scale matters and a tragedy of the commons is always a potential risk to its health. The complexity of the ocean as a super-phenomenon suggests that a systems engineering perspective would be valuable to identifying useful conservation goals. It

seemed to me that The Ocean Project would be a great place for me to work to make a contribution. It turned out it was also a place for me to challenge my education.

Years of tracking aquarium and zoo visitors through systematic study and focus group exposé by The Ocean Project and their partners had shown that people engage more fully with animals when they aren't distracted by other opportunities to put their attention elsewhere. Signs, stories, and maps provide distractions that seem important to explore for those who have benefitted by schooling. And yet, all that information is readily available today outside of the aquarium or zoo. The visceral connection makes people care more deeply about the animals they meet. Upon meeting an animal, the animal is explicit and immediate. Look into its eyes and there's an opportunity to see a part of you looking back. Some background information on evolution and ecosystem helps build that connection in some cases, but intense emotional connections can occur as part of a deep primal experience as well. Do a good job of showing the animal's environment and an emotional connection to the environment can emerge as well.

Having honed my ability to perform meta-thinking skills (the ability to think about how you are thinking at any point in time), required of me to overcome various academic hurdles, I visited aquariums in Seattle, Chicago, Monterey, Chattanooga, Baltimore, and Boston to experiment with how my mind-body experienced those establishments in two different modes. In Seattle, Chicago and Monterey I read every exhibit sign, story, or map and played with the virtual exhibits (all well done, I concluded). In Chattanooga, Baltimore, and Boston I stood in front of the animals and experienced them without distraction. I did nothing else. I spent two hours at each aquarium to immerse in the mode of experience.

I noticed a difference in my state of mind. There were many nuances to pay attention to. Then there was a powerful emergent moment when the difference dawned on me – while taking the escalator up from the first floor of a Northern Territory (Australia) exhibit to the second floor where it continued. I realized my mind was in a particularly non-verbal place and I felt a primal connection to the animals, plants, and surrounding scenery in the display. The integration of fire and flood into the exhibit probably helped the moment feel more dramatic. I came to the conclusion that The Ocean Project's findings were well within the realm of direct application to my own life.

One extreme emotional-visceral moment occurred during 2008 in Chicago at the Shedd Aquarium. The Shedd had one large room where all the fish of the world were presented in exhibits side-by-side, with the intent of demonstrating diversity and the effects of varying environments. Each exhibit provided ample signage to read, but the first sight I had of the room was from a distance where none of the detail was readable, but the place-dependent fish habitats were immediately recognizable. A strong feeling emerged when I contemplated the role us humans played in getting these fish in one place where otherwise they would never exist in one location. The world felt small and fragile and in condition that allowed for great human stewardship.

Those feelings seemed to provide a useful emotional state from which to read each exhibit's signage. They still continue to be easy to conjure up through a memory-aided visualization exercise in my mind.

As a result of my interest, and my skills base being of value at the time, I spent two and a half years working half time for The Ocean Project in their international headquarters. I had to tone down my acquired skill set that represents complexity in visual forms and interjects thorough numerical analyses into visual presentations. Instead I had to think about an overall state of conservation messaging across 1500+ partners of The Ocean Project and how to build media to effectively grow that to become more valuable for conservation. These messages had to be very skillfully applied, as they could not risk taking attention away from the personal connection to the objects of conservation just to have a more complex understanding of those objects and their relation to each other. Of course, performing conservation activities in the wild would require that knowledge in order to be effective and compassionate, but that implementation seemed obviously secondary to the motivation for all those who would not actually do the work – they would just have to support it mindfully.

Within a year of putting all my first-and-foremost emotional effort into The Ocean Project, and voraciously continuing my reading regarding ocean science but with a new conservation priority, I realized I held a fair amount of expert knowledge across many relevant aspects of ocean science relevancy to ocean conservation. When the opportunity came to me to be a delegate to the International Aquarium Congress (IAC) for the 2008 convention, I made it an immediate priority. I had participated in enough academic conferences (presenting papers, providing workshops, or offering a poster to the poster presentation space) to feel confident at estimating what the opportunity would provide me in terms of growth within the community. I also had the sense that my participation could take a different form from the conversations I had with those delegates from previous congress conventions. My 2008 participation began a unique eight-year period in my life that forms the basis for this paper.

IAC Participation Trajectory

Participating in an international community requires a certain amount of cultural awareness and experience in order to gain the trust of others and feel comfortable in trusting others. The regional differences based on where the conventions are held are significant (those who work behind the scenes to put on the physical convention only know that one congress), and participation provides the opportunity to gain an appreciation of perspective. The three congresses to which I was a delegate took place in Asia (Shanghai), Africa (Cape Town), and North America (Vancouver) – a reasonable spread of local cultural perspectives to emerge insights regarding perspective. The mix of delegates' nationalities was similar enough across congresses that insights emerged as to the effect of local culture on the overall congress.

I had no visceral knowledge of cultural implications when I walked into my first IAC in 2008, but I suspected they would be significant. As a result, my mind at the first congress focused on optimizing my formal presentation, taking a wide berth in exploring other presentations (papers, panels, posters, and informal gatherings), and filling pages of a notebook with the thoughts of others, edited with my own reactions as a trained systems engineer.

Bill Mott (director of The Ocean Project) and I presented a paper entitled *Personal Connection to the Ocean Via On-line Interactive Experiences* to the 2008 congress [1]. In that presentation, we attempted to motivate other delegates with ideas on how on-line experiences could build awareness and conservation action for aquarium visitors. The experiences identified could be performed before or after visiting the aquarium, at work, home, school, library, or anywhere Internet access was provided to a basic desktop computer with monitor. Figure 1 presents a screenshot of the online tool.

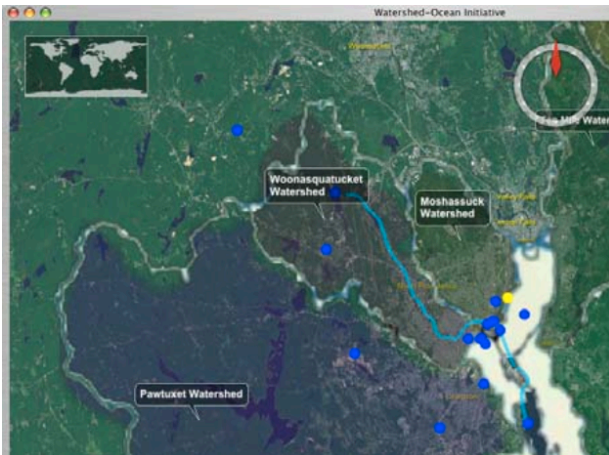


Figure 1 – Example of an online personal ocean connection tool
As the 2008 congress focused the delegate community's effort on reducing long-term energy costs of large aquarium venues, I concluded that our paper was relevant as an example of providing meaningful experiences that did not require high energy-consuming resources. The paper emphasized experiences that connected of all world residents to the ocean through water.

In retrospect, I learned that the Asian location influenced the congress greatly. The meeting was formal and managed with an emphasis on facilitation for Asian participants – most obvious to me in the effort made to provide high quality translation services from presentations made in English. I was told to provide my script in advance and memorize my presentation for the benefit of the real-time translation service.

In 2008 Asia had recently built and opened new large venue aquariums in large cities with large expected annual visitor counts. Additional large venues were to come online there over the next few years. There was an impressive focus on older, established aquarium personnel debriefing the new and upcoming aquarium personnel in cost management lessons learned. I estimated that the sharing of cost reduction and

management information alone justified the cost of transporting the world's delegates to Shanghai.

Cape Town 2012

The formality of the Shanghai congress did not repeat in Cape Town. The Two Oceans aquarium personnel that hosted the 2012 congress just down the street from their venue were friendly and relaxed in demeanor. I felt significantly more relaxed having attended a congress, but even more so by the familial feel provided by an older, established aquarium host that had such a dramatic physical location to call home.

Mark Stoermer (director of The Center for Environmental Visualization) and I presented a paper entitled *The Watersheds Project: Community-based Modeling to Support Watershed Quality* to the 2012 congress [2]. In that presentation we emphasized the potential for partnership on community education and conservation issues with watershed councils with close proximity to the aquarium venue. Figure 2 presents various roles we suggested could be facilitated through the watershed council and coordinated online services.



Figure 2 – Community roles with watershed quality interests

We had spent four years specializing the roles associated with a bottom-up focus, whereby previously we had considered each world resident as a general generic visitor. Working closely with two watershed councils, we described the work we had been doing to develop online services, and community-meeting infrastructure, for those councils to share with residents within their watershed boundaries.

As the 2012 congress focused the delegate community's effort on stopping the collection of new fish from the wild and the stopping of returning captive fish back into the wild, I concluded that our paper was relevant as an example of how fish and biodiversity could be representative cohesive issues for coordinating residents' awareness of water quality conservation. Serendipitously in 2012, a dam had been removed in each of the watersheds I had been working within and I had the opportunity to work with residents through that creation of upstream passage for viable local fish species.

Having internalized the culture of an IAC, and becoming more comfortable as a result, I found I was able to take extensive notes while approaching more delegates for one-on-one discussions. I presented a poster in a poster session that

provided ample interaction with conference attendees. The dramatic natural location at the convergence of two significantly different water bodies (the cold Atlantic and warm Indian ocean regions), created a visceral attention to the plight of the ocean that has continued to be valuable for my personal work.

The talks I attended from personnel at large aquarium venues contained more sophisticated presentation of energy requirements and mitigations at their facilities. I left Cape Town feeling like the delegate process at the IAC provided a valuable contribution to making ocean awareness and conservation methods better through thoughtful iteration and communication. Energy management could just have been low-lying fruit. I made note to follow through with an assessment of exhibited fish process progress come 2016.

Vancouver 2016

My ability to find funding to continue the website support for ocean awareness and conservation waned during the four years between the 2012 and 2016 IAC meetings. As a result, I had returned to working with ocean and watershed scientists to visualize new data sets as outreach to the general public and scientists working in other domains. Increases in sensor deployments and water quality studies provided me opportunity to get paid through existing relationships with scientists instead of from funding organizations.

I felt a day-to-day difference in working with new data, compared to working with it prior to 2008. A newly gained cultural awareness suggested approaches I could use to help with awareness. An emerging global connectivity of data through efforts like the Ocean Observing Initiative and Earth Observing System suggested broader consideration when servicing local data needs.

I enthusiastically accepted the offer to become a delegate for the 2016 IAC in Vancouver. Vancouver would provide a regional culture I had spent fifteen years getting to know and provide an opportunity to explore how useful IAC participation could be when working on peripheral tasks.

Other delegates mentioned the fact that the paper acquisition process was not as well done as in prior years. I had not been invited to present a paper but I also didn't expect to be invited. Others considered that they had been slighted by not being invited. I was curious about complaints I heard and found myself thinking about them often. Perhaps papers were not the best vehicles for community meetings. I began to see a parallel with the Ocean Project's research. Perhaps it was much more important for us to make an emotional connection and commitment to each other while co-present – papers could move to the periphery as materials available after the meeting.

I convinced myself to test out a hypothesis by not pursuing a formal paper presentation and avoiding any paper presentation sessions (since simultaneous alternatives were always available). I would take notes that connected people with their presentations and pursue meeting with them one-on-one. The paper would be about my activities and experiences in Vancouver.

The Vancouver Aquarium is known for having a progressive consideration of climate change and ocean issues associated with climate change. As a result, the morning keynote presentations were packed full of scientific evidence of dramatic changes being brought on by climate change and perspective on the ramifications from climate change periods of the past.



Figure 3 – A more direct emotional connection to the IAC in Vancouver

The presentations struck me as dire and yet necessary for framing a sense of progressive reality for the congress. The scientists invited to speak had impressive credentials, reasonable methods, and thoughtful conclusions. I heard many delegates mention concern that such dark messages on sea level rise, biological diversity, ocean acidification, and planetary climate patterns could damper the enthusiasm for the congress. Research on the general public suggested many were not able to handle the truth without a sense of despair that left them feeling powerless. There was a obvious opportunity for the attendees to work on improving the ways the information provided by the keynotes speakers could be understood by the general public and yet foster positive energy towards moving forward with such knowledge. I had already wrestled with that process in my own life and valued the ways of looking at the world my peers had provided me. I came to the conclusion that dealing with a feeling of environmental stress is not easy, but dealing with the feeling of being alone in considering the potential for environmental collapse is worse.

I pursued a one-on-one discussion with each of the presenters and found myself surprised that in each case I had the opportunity without great competition. I got the feeling each carried a burden of having to share bad news and yet I got the feeling that each of them had found success in their careers by

being able to gain recognition for their ability to both do the science they did and share bad news that came from that science. They all had a well-connected social network and an interconnected knowledge base with other scientists working in similar domains and similar issues. The presenters had been vetted well and came to Vancouver readily in part because the local aquarium had a strong history of willingness to embrace their messages. Because the aquarium had adopted a minimalist view towards signage, maps, and stories, the climate change story came mostly out of the work of their research staff.

One-on-one conversations I had with individuals from the invited media were similarly rewarding. I found that the members of the media attending the congress had demonstrated track records of high ethical reporting quality and a lack of gratuitous sensationalism. They had a history of reporting news in detail by effectively covering the messages from presentations, talks, and exhibits at professional conferences. Based on interactions with them, I concluded that the media were very active in making social connections with delegates in order to understand what work we did and the context in which we did it.

I found that aquarium management debriefing sessions ran parallel to any paper presentation sessions. I attended all those sessions. Aquarium staff, stewards, and owners presented well the state of their current facilities and programs being run to perform aquarium services. The category headings that identified aquarium activities were familiar from 2008 and 2012. I found a continued emphasis on energy costs and mitigations. I did not hear any specific efforts at exhibit substitution choices to avoid new specimen capture. I did hear about the detailed process required to capture and deliver hammerhead sharks successfully to an exhibit. Hammerhead sharks were not being displayed outside of a couple of aquariums and so expanding with the captured base was deemed impossible.

One debriefing session stood out for the visceral response it evoked in me. The new Toronto Ripley's aquarium, built recently in the core of Toronto's entertainment district, had experienced high success in their first six months of operation based on visitor revenues and the explicit metrics of edutainment the aquarium owners were pursuing. I could not refute the success, but I found a huge disconnect between the mood of presenting fish in this light compared to presenting them with a first and foremost commitment to connecting those experiences to the messages shared by the keynote speakers.

The Toronto facility is the largest of three facilities provided by Ripley's (of *Believe it or Not* fame). I had no doubt they would pursue additional locations based on their success. Since I believe in making learning fun, I listened intently to see how there could be a connection between education and fun in an aquarium. I remember many moments when visiting aquariums where I found the fun to be counter to awareness of fish and their environments. The design problem certainly deserves multiple approaches and thoughtful case studies to come from them. Ripley's seemed to be on one extreme of the continuum of approaches I imagine as meaningful to pursue.

I felt that indirectly the 2016 congress focused the delegate community's effort on mindful incorporation of scientific evidence on stress and crisis to marine and riverine life, and that the indirection was provided so it could permeate slowly as an undercurrent to sharing overall successful methods and processes at large aquarium venues. Without question, I spent the whole congress with a meditative mindfulness of each day's keynote presentations. The influence of a strong indigenous flavor to the local region countered the high-density glass and steel modern city in which the congress took place – just a twenty-minute walk from the aquarium.

I walked out of what was highly likely to be my last IAC with the awareness that all my personal experiences with the IAC, and preparing for each IAC, made my participation possible at a deeper level each time. I felt that the Vancouver experience would have been overwhelming for someone who did not have experience with the Pacific Northwest, had not spent time with the scientific data for a prolonged period of time, and had not spent time getting to know the delegate community at and between IAC meetings. In other words, I felt a strong sense of personal growth that emerged as satisfaction.

Conclusion

Aquariums have the potential to support ocean awareness and conservation through supporting local residents who wish to work together to perform activities in that light.

There is an opportunity to get involved in providing an increased focus on endangered fish becoming endangered from emergent ecological phenomena [3]. These fish provide an opportunity to educate on environment, fish, and human impact. Instead of just wanting to be the place in the community for fish to be experienced, aquariums have an opportunity to promote community-based aquarium interest in hobby fish husbandry. By being the respected fish institution in the community, a knowledgeable voice can motivate and coordinate an expanded reach for fish species survival. The public venues are of great value as physical locations for home hobbyists to commit to a shared vision – one that can meet a guided overview with a bottom-up shared learning and doing experience. Paul Loiselle made a very compelling case for this possibility in a compassionate keynote presentation.

These efforts, and the lessons learned from them, can then be coordinated through an online website that shows where the fish come from and the process by which they can be salvaged. Since focusing my mind at the keynote, I reminded myself of seeing remarkable home aquarium efforts that were specifically targeted to maintaining endangered fish. Those cases were not connected well by any means, and in at least two cases special accommodations were required to let the home hobbyist keep those fish after local authorities had discovered them in home settings.

As I review these thoughts that run together as a result of committing to getting them down in a paper, the lingering conclusion is that the IAC provided me a way of being, communicating, and participating that is of great value to my ability to provide service to the ocean. The official training in

natural systems and systems engineering certainly helped me get up to speed quickly, but I could not have anticipated nor surrogated the actual experience of being a delegate. I can't help but feel that the world would benefit from everyone having an international experience that the IAC afforded me. I have watched other congresses, and mock congresses, without being a direct participant. Those helped me gain a sense of how to work with a commons like the atmosphere, ocean, or

Antarctica – but without the lens of a profit motive that is often required of spending such resources to move people around in order to collaborate and corroborate in person. Should my role as an IAC delegate be over as I suspect, the trajectory it has provided me will continue to inspire a perspective of how to inject the sense of being a steward into my fellow world residents.

References

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- [3] Loiselle, P. (2016), *An Introduction to the Fishes of Malagasy*, <http://aquaticexperience.org/2015/09/09/paul-loiselle-on-an-introduction-to-the-fishes-of-malagasy/>, first presentation on September 9, 2015.