

CHANGING TASTES, CHANGING MINDS

By Neil Anthony Sims*

This column frequently expounds – even exalts, perhaps – on the mounting accumulation of scientific evidence that supports the responsible expansion of offshore aquaculture.



Courtesy of NOAA.

Whilst a decade or so ago there was a dearth of peer-reviewed literature on the subject, there is now a profusion of evidence that is not only endorsing, but is exhortative and assertive. Not only can we expand aquaculture offshore, but we *should* ... *we must!*

A growing body of government researchers and independent academics are publishing, and are beginning to also proselytize. We can add to this library, now, two more seminal studies. Aaron Welch and colleagues from University of Miami's Rosenstiel School of Marine and Atmospheric Studies have now published a compre-

hensive analysis of water quality and benthic impacts around the world's largest offshore fish farm – the Open Blue cobia operation in Panama. And the Consortium on Ocean Leadership – an association of the most respected marine research centers in America – has recently published a collective assessment of the current constraints, potential risks and possible benefits that could flow from an offshore aquaculture industry in the U.S.

And then also let's consider – with some breathlessness – the even more astonishing revelations of the general public's current thinking around offshore aquaculture. It's not what we fear that they think; it's not what

the most vocal naysayers may vent about. Arlin Wasserman's "Changing Tastes" study asked folks what they actually want to eat, and why. It finds that consumers across the US are much more inclined to accept farmed seafood than anyone suspected, and they show a particular preference for farmed seafood that is denominated as of "offshore" origin. Offshore aquaculture, it seems, plays well in Peoria.

Aaron and his team's publication on the Panama monitoring (<https://onlinelibrary.wiley.com/doi/full/10.1111/jwas.12593>) was the culmination of five years' worth of field-work, with Niskin bottles, probes and grab samplers, bouncing around the briny in small boats some 13 km off the Costa Arriba region of Panama (on the Caribbean side of the isthmus), in 55 – 65 m deep water. Over the course of the study, the Open Blue operation has scaled from 16 Sea-Station net pens, each around 6,400m³ in volume, to a final count of 22 net pens, holding an estimated 1,360 T of cobia.

The upshot of the analyses showed – almost entirely – no significant differences in water quality between the sites up-current, and the sites down-current of the net pen array. Some of the parameters (particulate carbon, at some specific depths) actually showed higher levels at the up-current sample sites. (So ... the pens were cleaning up the water!? Filter-feeders on the net pen mesh? Go figure ...). There was, however, a statistically significant decrease in dissolved oxygen (DO) throughout the water column, as the water moved past the net pens. These differences were of the order of 1 - 3 hundredths of a ppm. As ambient DO levels were of the order of 6.5 ppm, this represents less than a 0.5% reduction in oxygen. So OK, there was indeed a "statistical significance," but in the open ocean, this is far, far from any ecological significance; i.e. nowhere near any detrimental impact that could be any real cause for concern.



Courtesy of Open Blue Cobia.

The benthic sampling revealed "a trend toward increased organic loading in the benthos" underneath the net pens, but one would suspect that the same increase in organic loading could be found in the pasture behind the back end of a cow. In any case, temporal variation in substrate indicators (both seasonal and year-to-year) proved to be greater than the effects of distance from the net pen array. The authors do betray some of the bias that we all might share, when they concluded that these results provide "a reason for cautious optimism." But they can be forgiven – this bias is borne of experience, and frustration.

So overall, this paper reaffirms the broad generalization that we have come to understand, and advocate for – in deeper water, further offshore, fish net pen systems (at proper densities, and with proper management) can function within the assimilative capacities of the ecosystem. The ni-

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trogen or phosphorus inputs to the ocean that might possibly be considered a "pollutant," can become a "nutrient" in offshore waters, stimulating primary productivity (which is, in the main, a good thing). The authors recognize this, also noting that "nutrients of the sort discharged by aquaculture facilities are not, *ipso facto*, pollution," and there are often benefits, in terms of increased productivity of fisheries around aquaculture sites. In our modern oceans, where over 90% of the big fish are already gone, and almost all the planet's fish stocks are exploited at or beyond their sustainable catch levels, increased productivity might be something that would be celebrated; or at least given a listen.

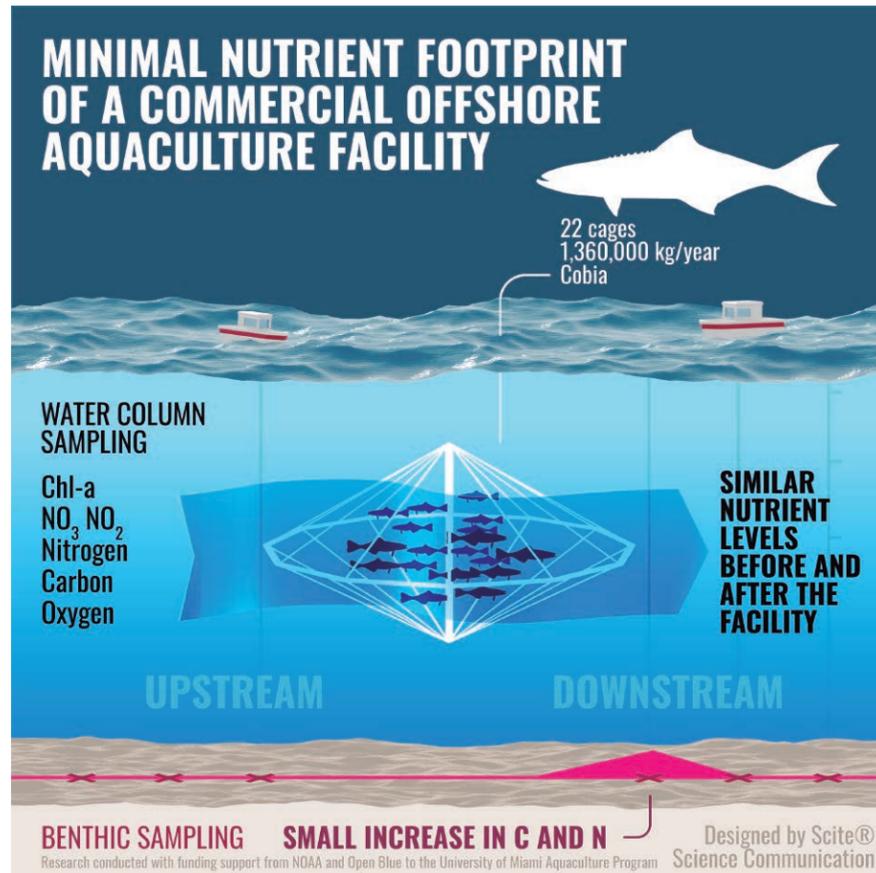
Take heart: some are listening. A forum in Washington, D.C., on October 26th, last year, posited the pointed question of "U.S. Offshore Aquaculture; Will we fish or cut bait?" This event was convened by the Consortium for Ocean Leadership (CoL), in conjunction with the Meridien Institute (with the apt tag-line: "Connecting people to solve problems"), and a slew of sponsors (from NOAA, to industry and certification entities, advocacy groups and foundations). CoL is not well known outside of academic and policy circles, for the simple reason that they are an agglomeration of academics who convene these annual forums to consider policy questions (... "academics" ... "policy" ... your eyes are starting to roll back, right? Don't doze off on us, yet, please ...

stay with me!). See ... CoL are the folks that run and staff the nation's marine laboratories. They are dedicated, professional marine biologists and oceanographers; researchers with no vested interest in anything other than healthy oceans, and sound science. If U.S. offshore aquaculture ever wished for an objective hearing from a jury of learned peers, then this was going to be the day.

The goals of the one-day event were to "develop a clear, shared understanding of the current state of offshore finfish aquaculture ... opportunities and challenges" along with "consideration of the science, environmental safeguards, investment opportunities ... (and) ... specific areas of action ... to advance informed decision making in this emerging industry." If this sounds familiar, then it does bear a disquieting similarity to any number of august gatherings and groupings over the last couple of decades, which have all amounted to ... um, well ... not much progress at all, really, to be brutally honest.

There was the usual array of PowerPoint, podium thumping and panelist discussions that came to the usual conclusions (well – the conclusion with which most of us are all-too-aware), that (dang it!), we should be growing more of our own fish in U.S. Federal waters. It makes economic sense. It makes environmental sense. It could create employment. It could improve American consumers' nutrition. The main impediment to this consummation most-devoutly-to-be-wished is that the "regulatory processes in the U.S. are complex, unpredictable, and lengthy," and are discouraging of investment. Ok, we get it, already. We got it. We all knew this, right?

However, what was perhaps helpful to us all from this event was that – this being a policy gabfest in Washington, DC. – a number of Congressional staffers were in the audience. Many of them probably already knew these imperatives and impediments too, but it seemed that they were grateful to hear the overwhelming consensus of such



an authoritative, unbiased body. The conclusions from the Forum could therefore prove helpful in moving forward legislation that might actually stand a snow-ball's chance in Chad. The forum concluded with almost unanimous, rousing endorsement of the AQUAA Act (formerly known as the Wicker Bill – the “Advancing the Quality and Understanding of American Aquaculture” Act). This is the revival of legislation to provide a sound regulatory framework for aquaculture in U.S. Federal waters, which is being pursued most capably and vigorously by the SATS coalition (Stronger America Through Seafood – you are not yet a member? Write to me, and I will connect you!).

The CoL Proceedings - recently published online for the whole world to see (https://oceanleadership.org/wpcontent/uploads/2019/01/2018_IndustryForum_ProceedingsDocFinal.pdf) – concluded that the AQUAA draft provided a “viable starting point (which), with modifications ... focus-

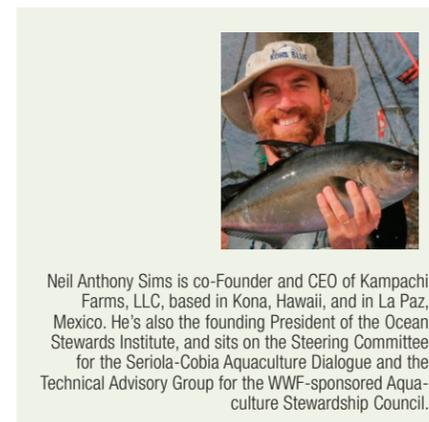
ing on environmental safeguards ... would not only ensure sustainability and viability but also attract the necessary bipartisan support.” (Implying perhaps, that bipartisan support is more highly desirable, but more difficult to achieve, than sustainability or viability. In Washington, D.C., today, that may actually hold true!). The legislation will go nowhere if Congress is still swayed by the Orwellian chorus of “Farmed cows good, farmed fish bad!”. But it is clear - the truth is no longer black and white, but is rather a spectrum of blue and green hues, with some gray in between. It will be a sad day for American consumers – and American oceans – if Congress is content to metaphorically and literally sit on the beach, gaze out at empty, barren seas, and not change a thing.

But Congress is meant to reflect the will of the people... and people, change is indeed a-coming! Nowhere is this more comprehensively and compellingly underscored than by Arlin Wasserman and his colleagues

at Changing Tastes and Datassentials in their recent consumer study entitled “Aquaculture – Mariculture: U.S. Market Insights and Opportunities” available through their website (www.changingtastes.net). A pdf of the study summary is available by googling “changing tastes mariculture insights”.

This study found that fully one quarter of U.S. consumers intend to eat less meat, with beef consumption projected to decrease by 20% over the next decade. So ... what then will they eat? Consumers’ top choice to replace beef was – (wait for it ... *TabDab!*) - fish and shellfish! Even more - “offshore” was found to now be a strongly favored differentiator in seafood selection. Over a third of U.S. consumers believe that offshore aquaculture already provides “a substantial share” of the fish they eat. (Oh, if that were but true!). The study interprets this misperception as an opportunity, demonstrating that there is already “pre-acceptance” of offshore fish farming, and heralding “market recognition and support” for offshore operations and products. And, most tellingly, “a quarter of consumers and operators believe (offshore fish farming) is better for the environment than wild capture fishing.”

Well! Who knew?! Savor that conclusion for a moment, dear reader, then rise up, and recommit yourself to the future of fish ... beyond the blue horizon. The tide is turning in our favor. I can almost taste it! 🍷



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