

February 2019—AQUACULTURE PERSPECTIVES

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Can energy production and aquaculture coexist?

by Bill Mancini

In April 2010, the Deepwater Horizon oil drilling platform in the Gulf of Mexico exploded, caught fire, and sank.

In the ensuing months, the damaged rig released 3.5-4.9 million barrels of crude oil (134-205 million gallons) into the nearshore Gulf, affecting beaches from Texas to Florida—officially the worst oil spill in U.S. history.

Until then, the running-aground of the Exxon Valdez oil tanker in Alaska's Prince William Sound in 1989 had been the worst U.S. spill.

Most recently on 16 November 2018, the SeaRose platform east of Newfoundland and Labrador accidentally released 250,000 liters of crude oil (66,000 gallons) in rough weather into the western Atlantic Ocean—the largest in Newfoundland's history.

At least 100 new exploration wells are planned for the region in and around the SeaRose platform, with one platform planned for much farther east and in much deeper water.

To be sure, these are just a few examples of the many spills (most of them smaller) that occur annually, and in areas that are similarly adjacent to coastal regions.

These spills can be the result of drilling and extraction activities, single-ship collisions and groundings, multi-ship collisions, land-based spills into the oceans or rivers, intentional dumping, or numerous other possibilities and scenarios.

After more than a century of usage and dependence on petroleum for the production of products and energy, it seems we still do not have a foolproof way to get it from the ground to the marketplace without cause significant environmental damage on a very regular basis. Quite frankly, it's frightening!

Given this frequency and the usual proximity of these spills to coastal regions, it begs the question of our ability to physically isolate these incidents from everything else we do as a society—including coastal aquaculture.

While I cannot point to a specific example given my less-than-perfect memory, I am certain that coastal aquaculture activities have been impacted by petroleum spills, or distillate spills (e.g., gasoline or diesel), within the past 5 years on multiple occasions.

We all drive cars, we all fly in airplanes, we all use plastics, and, and, and...

So, it's no news to any of us that we are the ones who encourage this seemingly never-ending problem.

What does this mean for the future of conventional coastal aquaculture? Quite honestly, it does not bode well.

Our planet is finite in many ways—including space in which to conduct all of our business. As world population grows, we are bound to step on each other—actually, in rather predictable ways.

By predictable, I mean we are going to see more and more oil spills. Take that one to the bank.

This means we have to prepare for it or aquaculture will suffer the consequences. In my view, this means getting the heck out of the oil drillers' way. The clock is ticking on coastal aquaculture.

We are not going to stop using oil anytime soon. Our dependence on it will gradually lessen, but we are very far from 100-percent alternatives.

Renewables, including wind and solar power, account for relatively small percentages of our total energy demand, and they are imperfect in terms of real-time electrical availability (storage in batteries needs to improve for a more even and reliable supply), and environmentally. Keep in mind, land-based and sea-based wind farm rotor blades slaughter many thousands of birds every year.

So, fossil fuels are, by necessity, in our near-term and medium-term futures. Aquaculture must do a work-around.

Here's where land-based and open-ocean systems come into play.

Land-based recirculating aquaculture systems (RAS) use orders of magnitude less space and water than conventional coastal systems, and are much less subject to the vagaries of adjacent human activities. In short, we can "cocoon" our fish with water that is much more under our quality control, and even temporarily halt replenishment until threats to their water supplies pass.

Open-ocean systems are over the horizon and much farther from the harm of coastal pollution and other human pursuits. These systems are mobile on a moment's notice, and can translocate to avoid dangerous weather, oil spills, toxic algae blooms, or other approaching hazards.

When I work with a client during a feasibility study to help them decide where a facility should be sited, it's my job to think of everything that can go wrong. Whether we are considering inland, coastal, near-shore, or open-ocean options, you must pay attention to what the neighbors might have in store for you.

Physical, chemical, and biological threats are everywhere, and becoming more numerous. Over time, that has made my job more and more difficult.

Energy production—and for now, fossil fuel extraction—is a fact of life. Aquaculture can coexist with energy producers if we take into account the limitations and imperfections of both.

Ultimately and by necessity, innovation will win out over convention in both arenas.

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