Federal Support for the Expansion of US Aquaculture

Aquaculture America 2023
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The National Aquaculture Association hosted members of the Subcommittee on Aquaculture for a public session during Aquaculture America 2023 with goals of providing the aquaculture community with federal agency activity updates and facilitating a breakout session to elicit comments on five questions to inform future Subcommittee direction:

> What are the major challenges in your aquaculture sector?
> Why is your industry critical for mitigating the impacts of climate change?
> How has federal research and development impacted your business?
> How have changes in aquaculture regulatory efficiency impacted you?
> What are your thoughts on the proposed economic development action items?

Attendees to the breakout session were randomly assigned to three groups and each group was challenged to comment on each of the five questions. Facilitators captured the discussion in real-time. Their notes were organized into five question summaries (attached as an appendix) and summarized below as important points:

- Direct and indirect regulations were the most frequently identified challenge across the five questions. Attendees pointed to burdensome costs, impact on marketplace competitiveness, the time, effort, and cost to achieve permits, differences in regulatory implementation between federal regional offices, faulty implementation of the National Environmental Policy Act, and the significant differences between states to achieve compliance with discharge permits and aquatic animal health testing. Attendees also noted the expense and rigor of US regulations does positively influence product quality and sustainable production.
- The second most discussed challenge was aquatic animal pathogens and disease with attendees reporting a variety of pathogens which reflects the diversity of aquatic animal culture in the United States, and the impact of climate change which is expanding pathogen geographic range and amplifying hazardous algal blooms in natural waters. Similarly, the variety and spread of nonnative invasive species is impacting production.
- In response to, or in preparation for, a changing climate attendees reported domestic aquaculture can adapt through species shifts on the farm while providing local farmed seafood that reduce transportation related greenhouse gas emissions and pollution. Increasing shellfish and seaweed biomass contributes to healthier marine ecosystems that heal the planet through greenhouse gas emission mitigation. Attendees noted research is needed to inform the farming community how to enhance their farm management and product marketing to further mitigate or capture emissions.
- The importance of federally supported, farmer informed, applied research was identified across all the questions with attendees noting the benefits of research to prove the commercial feasibility candidate aquaculture species, support for on-farm innovation and expansion, and climate change adaptation and preparation. Attendees also noted certain aquatic animals and US territories were not receiving equitable research support.
- Attendees identified the need for workforce development, access to labor, enhancing middle and high school agricultural education by including aquaculture, and developing robotics to accomplish repetitive, onerous on-farm tasks are needed.

Appendix

1. What are the major challenges in your aquaculture sector?

Regulations

Regulatory costs range across the US aquaculture sectors from 8% to 29% of the cost to farm. Represents one of the top five costs for all farm types and species.

Global regulatory disparity (i.e., higher US regulatory costs) severely impacts the ability of the US farmer to operate profitably and be competitive on price. Imported products should have to meet the same regulatory standards (e.g., human health, labor, environment) as the US producer:

- Food safety, environmental protection, labor, aquatic animal health (drug use and care).
- Need FDA import alert on seafood products.

Regulatory uncertainty (cumbersome process, length of time) hinders aquaculture growth. The market is available. Acquiring permission to farm in a timely manner is constraining the ability to produce farmed seafood.

A sensible, understandable regulatory structure is essential, all other concerns are secondary.

General perception: Agency HQ offices do not want to tell the regions what to do (e.g., Army Corps of Engineers).

Specific Issues

Clean Water Act required National Pollution Discharge Elimination System (NPDES) Permits:

- State DEQs are imposing permit standards that are more restrictive than the Environmental Protection Agency (EPA) and causing huge compliance costs for farms and prohibiting growth on industry/new farm development.
- NPDES should reduce monitoring requirements for farms with historical compliance. Many farms have never had permit compliance issues in decades of operation, but they still must bear these costs. EPA should develop a public facing information to inform aquaculture farms in compliance with their permit that they can request reduced monitoring.

Interstate transportation and aquatic animal health and prohibited/restricted species regulations:

- Conflicting, costly, constantly changing, duplicative processes even between state agencies sometimes, and no reliable, accessible source to confirm laws and make sure farmers are complying.
- A shipment of fish leaving the Midwest for the east or west coast markets crosses at least five state jurisdictions along the way, each with hard-to-find regulations that: 1) takes an inordinate amount of time to confirm 2) often results in disruptions during shipment, and 3) increases costs and risk for farmers 4) prohibits commerce, especially for small or new farmers.
- USDA APHIS should provide more national oversight for all aquaculture transport to alleviate state-by-state aquatic animal health regulatory barriers.
- The Lacey Act creates significant risk for farmers shipping interstate. Similar to animal health there is no one source of state, county or city regulations governing prohibited or restricted species. Farms have been issued felony charges and serious fines for minor issues. Many farms avoid markets

altogether because of uncertainty and concern. Currently new aquatic nuisance species listings create further issues with interstate markets.

Bird depredation permitting:

- USDA Wildlife Services and FWS dual authorities create complexity and costs to farms. FWS are slow to issue annual permits and do not respond to farmer permit status inquiries. Bird population assessments to determine take limits are not accurate enough or reflective of expanding or new local resident populations.

Offshore marine aquaculture:

- The National Environmental Policy Act (NEPA) process is confusing and not well-defined. A uniform approach across federal agency districts is needed. Examples being:
    - The NEPA required lead agency: one agency should be the lead across all the districts.
    - A checklist of environmental assessment topics should be developed.
    - Categorical exclusions should be developed to streamline the process.

- Stakeholders want a uniform approach to NEPA.
    - There is ample regulatory authority, but no set pathways, which turns costly for the applicant.
    - Programmatic Environmental Impact Statements (PEIS) may not solve the environment cost issue. Commenters were skeptical about PEIS because the government has no money to conduct the PEIS. The use of Environmental Assessments (EA) would help reduce costs (by not having to hire a consulting firm to conduct the PEIS).
    - Lawsuits under NEPA slow down aquaculture development.

Marketing

- Crawfish are challenged by cheap imports.

- Alligator skin is sold into luxury market which is currently depressed; needs market development.

- FDA oversees seafood products imported to US, visits/inspects farms overseas; APHIS has authority to do international audits, but doesn't have resources to do them.

- Concerns 3rd party sustainability certifications provided by commercial entities were being "bought" by industry.

- Demand is not the problem; aquaculture needs permission to grow.

Disease management

- Farmed crawfish experience white spot virus losses during production.

- New concerns about Ostreid herpesvirus microvariant 1 (OsHV-1) which is lethal to the Pacific oyster.

- Bacteria and parasites (naturally occurring) are expanding their range because of climate change. Viruses and other pathogens that require a vector are less effected by climate change.

- Challenge ocean acidification in the Pacific Northwest triggered move from Washington State to Hawaii to access cold seawater for molluscan shellfish larval production.
    - Other water quality impacts – lengthening hazardous algal blooms (HABs) periods (2+ months).

Invasive Species

- A nonnative invasive apple snail damages rice during the rice-crawfish production cycle.

- Invasive European green crab preys upon bottom planted molluscan shellfish.

Infrastructure

Access to water to work shellfish crops:

- Boat ramp infrastructure is a serious and growing problem for small and large shellfish farmers. Direct experience with this issue among group was noted for the northeast states and Florida. The issue is siloed authorities at the state level. State agencies administer submerged land leases, but county government may pay for and site boat ramps. Grants exist but they do not often encompass the full funding needs or eligibility for aquaculture development. A solution is Sea Grant funding and administrative support to county government specially for aquaculture boat ramp infrastructure, including land acquisition costs.

Social License

False environmental impact claims:

- Current research points to environmental compatibility and benefits by certain aquatic animal or plant production practices. This information is not widely available or seen in the popular press.

Insufficient Attention

Alligator farming receives limited federal attention (e.g., research, loans, disaster assistance). The farmer's perception is alligator farming is not recognized as aquaculture but is a major export product of Louisiana, Texas and Florida. Possession and sales are intensively regulated and sustainably raised.

2. Why is your industry critical for mitigating the impacts of climate change?

Contributes to Climate and Social Resilience

- Domestic aquaculture provides local products that greatly reduce emissions and pollution from air and ocean shipping. Aquaculture conserves natural aquatic resources and eliminates negative effects of fishing. More abundant and healthy oceans can heal the planet through greenhouse gas emission mitigation.
- Greenhouse gas (GHG) from cattle production can be mitigated by farmed algae additives to cattle feed to reduce emissions.
- Food security as wild stocks are depleted in coastal areas.
- Opportunities to mitigate – expand clam industry, oyster growth rates.

Climate Change Effects

- Not clear how industry can mitigate.
- Affects seasonal breeding activities.
- Is there an opportunity to adapt to species shifts through aquaculture.

- Take advantage of variability through selection for more resilient strains.

3. How has federal research and development impacted your business?

- USDA research has been positive and beneficial for farmers. Need more funding.
- One of the species we're raising (sablefish) was pioneered by the NOAA Northwest Fisheries Science Center.
- Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) projects are helpful.
- No funded applied research to benefit crawfish production. The few alligator research projects initiated were not completed; however, the limited work completed was helpful.
- Regional Aquaculture Centers information focused on industry-driven priorities.
- There is insufficient economics research to provide the information needed to support strategic planning and sustainable growth of the industry.
- Work conducted 20 years ago through USDA aquaculture grants.
- Need more resources for niche species.

4. How have changes in aquaculture regulatory efficiency impacted you?

- US regulatory requirements help improve the quality of US products, but expensive.

5. What are your thoughts on the proposed economic development action items?

Business Development

Business development grants focused on developing mechanization and then supporting adoption are needed to reduce production costs and labor unavailability.

- Opportunities to have space and investment in new farms, once learned the business?
- Training for new farmers.

Workforce Development and Literacy

- Investment and research into automation to reduce workforce burden, through innovations across the supply chain (example – robotic dairy farms).
- Would like to see more workforce development initiatives, harder to find workers – need young people to be interested in farm work.
    - Crawfish depend on H2A and H2B guest workers program.
    - Incentive – teach young workers the trade, become the next generation of farms (4H, FFA).
    - Sea Grant reviewing proposals for workforce development projects. Commercial fishing skills translate well to aquaculture.
    - Aquaculture literacy critical. Start with kids.

Equitable Funding

- Grant funds for research and economic development is not equitably available to the US territories as it is for the states.