

Buckeye Aquafarming

Ohio State University South Centers

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- Cost of regulations.....Pages 1-4
- ODW injurious policy.....Page 4
- NCRAC webinars.....Pages 5-6
- Fingerlings from AR.....Page 7
- Free aquaculture tours.....Page 8



Cost of regulations on producers of baitfish and sportfish in Ohio

By Jonathan van Senten, PhD¹; Carole R. Engle, PhD²; Matthew A. Smith, MS³

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There have been calls for regulatory relief from the industry for decades, and there is evidence to suggest that the industry is constrained by stifling and redundant regulations (Engle and Stone, 2013). In an effort to better understand the effects of regulations on the U.S. aquaculture industry, a study was conducted to measure the costs of regulatory compliance within the baitfish and sportfish industry sectors.

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Upcoming Events

NE Ohio Pond School
 Wolf Creek
 Environmental Center
 Medina OH
 May 31, 2017

National Aquaculture
 Extension Conference
 Boise ID
 June 5-9, 2017

Aquaculture Economics
 and Marketing Workshop
 Location TBD
 Columbus OH
 July 15, 2017

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Cost of regulations... (continued)

This study targeted the thirteen major production states for baitfish and sportfish: Alabama, Arkansas, Florida, Illinois, Kansas, Louisiana, New York, North Carolina, Ohio, Pennsylvania, Texas, Virginia, and Wisconsin. Together these states accounted for 81% of U.S. baitfish and sportfish production volume in 2013 (USDA, 2014). The responses to the survey captured 74% of the national production, with a response rate of 34% by number of baitfish and sportfish farms. The response rate in Ohio was 25% of known producers.

Ohio has one of the stronger aquaculture industries in the mid-west and accounted for 6% of national baitfish and sportfish production in 2012 (USDA, 2014), second to only Arkansas within the study. Many farms in Ohio are producing for the baitfish/sportfish markets, with the majority of farms being less than 20 acres in size (Table 1). On average, Ohio producers shipped live fish to 2 other states; with some producers shipping to as many as 4 other states. Sixty-seven percent of Ohio participants rated identifying regulations as the greatest or second greatest challenge to their business, followed by complying with regulations (33%) and feed costs (33%). In addition to this, 78% of Ohio participants indicated that they participated in fish health testing activities.

Regulatory Costs

The total regulatory cost to the U.S. baitfish and sportfish industry in Ohio was estimated to be \$1.5 million (Table 1). The average annual regulatory cost in Ohio was \$40,960 per farm, or approximately \$7,180 per acre; this regulatory cost per acre was higher than the national average, which averaged approximately \$3,000 per acre across all survey respondents.

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Breakdown of Regulatory Costs

Direct regulatory costs, license and permit fees imposed by regulation, accounted for less than 1% of total regulatory costs for Ohio producers (Fig. 1). Over 99% of all regulatory costs were indirect costs of compliance in Ohio; costs not directly prescribed by regulations. The average number of state permits required per farm for producers in Ohio was 3 (range: 1 to 6). The average number of federal permits per farm reported was 0.33 (range: 0 to 1); which means that several farms reported having no federal permits. Some of the reported permits and licenses required annual renewals, while others were more frequent, ranging from biannual and quarterly to a per-shipment requirement. The average number of annual permit and license renewals was 32 for Ohio producers. However, Ohio also reported the highest number of annual permit and license renewals amongst study states, in excess of 200.

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Lost Sales and the Costs of Compliance

Total regulatory costs broke down into five categories, the two largest of which account for 96% of the total regulatory costs in Ohio. At 58%, the largest and most prominent category in Ohio was lost and foregone sales. Data collected on lost sales were a measure of what had formerly been sold and could not find an alternative market. The average value of lost sales due to regulations in Ohio was approximately \$23,600 per farm.

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The next largest category of regulatory cost for Ohio producers was the cost of manpower to comply with regulations (38%), the highest relative percentage amongst all the study states. Captured under manpower was the value of time spent by management and employees on compliance activities, such as identifying with which regulations their business needs to comply, applying for permits, record keeping, filing reports, and attending meetings with regulators. Some producers indicated having hired additional labor specifically to help with permitting and record keeping.

(Continued on page 3)

Cost of regulations... (continued)

The remaining two categories (fish health costs and changes due to regulation) represented a small, but still very real cost to farms. Seventy-eight percent of participating producers in Ohio conducted fish health testing activities. Fish health costs comprised 2% of the average total annual regulatory cost to the baitfish and sportfish producers in Ohio (Fig. 1). The average cost of fish health for Ohio participants was \$934 per farm.

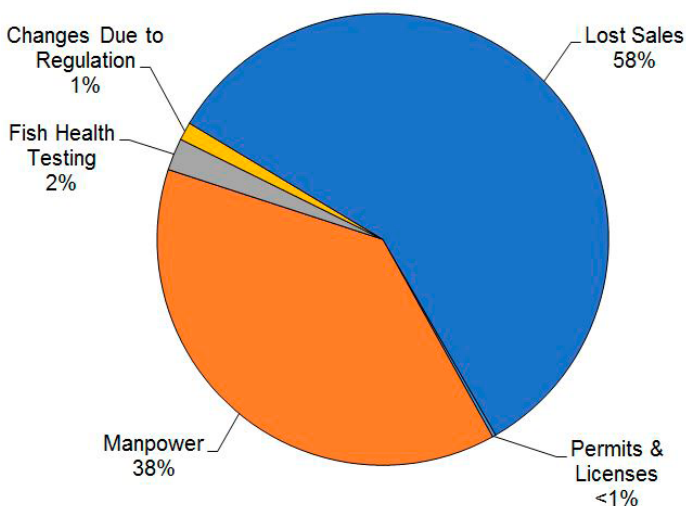
The last category, changes due to regulations, includes any changes in infrastructure, equipment purchases, management practices, or changes to labor to be compliant with regulations. Over half of the Ohio respondents (55%) indicated having experienced unexpected changes to their farm business to comply with regulations. However, only a few participants reported changes that had resulted in quantifiable costs. Therefore, changes made on the farm due to regulations made up the smallest cost category for Ohio producers (1%) in terms of total regulatory costs.

Conclusion

This study has demonstrated significant regulatory costs for the U.S. baitfish and sportfish sector, with total estimated annual industry expenditure in excess of \$12 million. Also of great importance is the finding that direct regulatory costs accounted for 1%, or less in some cases, of total regulatory costs; with the majority of costs being indirect costs. Additionally, the impact of lost and foregone sales cannot be overstated, especially where a loss of markets or limited access to markets, can have serious negative consequences for producers. Therefore, it is important that policy makers consider the economic implications of regulations, and work to

find ways to streamline, simplify, and reduce redundancy amongst regulations governing baitfish and sportfish producers.

Figure 1: Breakdown of regulatory costs for Ohio baitfish and sportfish producers



A more thorough comparison of Ohio and National results are currently being compiled for a fact sheet through OhioLine, the Ohio State University Fact Sheet website. Once published in the upcoming months, the Fact Sheet and additional infographics will be distributed to the OSU and North Central Region listservs, social media, and hard copied. This study was funded by USDA APHIS Cooperative Agreement Award No.14-9200-0403-CA.

Supplemental materials, including infographics on this project will be available soon at:

www.arec.vaes.vt.edu/arec/virginia-seafood.html

(continued on page 4)

Table 1: Summary of results Ohio vs National

Category	Ohio	National
Response rate by number of farms	25%	34%
Response rate by production volume	2%	74%
Average farm size (acre)	36	385
Number of states shipped to	2	10
Number of regulations identified	45	498
Average number of Federal permits per farm	0.33	1
Average number of State permits per farm	3	6
Average number of annual permit renewals	32	13
Annual estimated regulatory cost	\$1,474,569	\$12,027,128
Average regulatory cost per farm	\$40,960	\$148,554
Average regulatory cost per acre	\$7,179	\$2,989
Average regulatory cost as percent of total cost	23%	25%

Cost of regulations... (continued)

References:

- Engle, C.R. and N. Stone. 2013. Competitiveness of U.S. aquaculture within the current U.S. regulatory framework. *Aquaculture Economics & Management* 17(3): 251-280.
- USDA. 2014. Census of Aquaculture (2012). Available: www.agcensus.usda.gov/Publications/2012/Online_Resources/Aquaculture/aquacen.pdf. (September, 2015)
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ODW begins draft on an internal policy for investigating aquatic species

By Matthew A. Smith, Extension Aquaculture Specialist

The Ohio Department of Natural Resources Division of Wildlife (ODW) has been striving to ensure the safety of our waterways for decades. This is sometimes completed through assessing non-native aquatic species prior to allowing importation, culture, and/or distribution in the State of Ohio. Thoroughly assessing a species is expensive and time and labor consuming. Over the years, different countries, states, universities, and other non-governmental organizations have developed tools called Risk Assessments. In relation to public and private waters, many aquatic species have been identified and assessed by a risk assessment of some sort to determine whether or not that particular species could be harmful (and therefore listed as injurious) for that state, region, country, etc. There are many types of risk assessments and each have their own strengths and weaknesses.

The ODW Chief has the authority to establish and update an injurious aquatic invasive species (IAIS) list. A species will be added to this list through one of two ways: 1) the United States Fish and Wildlife Service lists a species as injurious under the Lacey Act or 2) the ODW assesses the species and determines that the species poses great danger to our native ecosystems or to commercial, agricultural, or recreational activities that are dependent on these ecosystems. ODW's definition of an IAIS species is, "... animals that cause or likely to cause damage or harm to native ecosystems or to commercial, agricultural, or recreational activities that are dependent on these ecosystems." Please see Buckeye Aquafarming's winter 2016 article entitled *Aquaculture and Aquaponics: the Lacey Act and Injurious Species* if you want to learn more about the Lacey Act. The Southern Regional Aquaculture Center's Pub #5005, entitled *Aquaculture and the Lacey Act*, also lists examples of how the Lacey Act can affect fish farmers.

ODW has asked OSU Extension Aquaculture personnel and the President of the Ohio Aquaculture Association to be involved in developing the policy.

To expedite the risk assessment process, the ODW is currently developing their own internal Rapid Risk Assessment policy. ODW has asked OSU Extension Aquaculture personnel and the President of the Ohio Aquaculture Association to be involved in developing the policy. Once finalized, likely within the next few months, the policy and an interpretation will be sent out via listservs, Buckeye Aquafarming, personal contacts, social media, etc. For questions about this article, contact Matthew Smith at smith.11460@osu.edu.

North Central Regional Aquaculture Center webinar series

By Allen Pattillo, Fisheries and Aquaculture Specialist, Iowa State University Extension
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Aquaculture in the North Central Region of the United States is diverse with respect to species, production systems, environmental conditions, markets, and consumers. Aquaculture extension specialists throughout the region work hard to support all aquaculture producers with high quality educational opportunities. Now, more than ever, folks are constrained for time and money, making it difficult to invest in workshops for continuing education. Technology is one way to address these constraints.

Therefore, in 2016 the North Central Regional Aquaculture Center, the National Aquaculture Association, and the United States Aquaculture Society partnered to produce a 15-part aquaculture-related webinar series.



The goal is to enhance knowledge and move participants forward on their journey to success.

Webinars allow people to connect via the internet to a live streaming presentation. Participants can gain valuable information from experts, and they can also ask questions and get them answered on the spot. When the webinar is over, the talks have been recorded, and they are uploaded to the NCRAC website along with any downloadable materials and links to other information. This helps our NCRAC extension group reach a broader audience.

Webinar participants include producers currently engaged in aquaculture, those looking to get into business, educators helping others understand aquaculture, and consumers that want to be better educated. This series covered topics like aquaponics, indoor shrimp farming, recreational pond management, seafood dietary guidelines, fish health and biosecurity, aquaculture regulations, marketing and social media. The goal is to enhance knowledge and move participants forward on their journey to success.

Participants in the webinars gained knowledge and shared it, improved their on-farm practices, anticipated more jobs and more profitability for their farm.

- **Knowledge Gained** - 64% above average knowledge post-webinar
- **Knowledge Shared** - 1,018–2,313+ estimated shares
- **Action Taken** - 50% added or enhanced on-farm measures
- **Jobs Created** - 140–200+ current or future jobs created
- **Economic Impact** - \$600,019–\$988,981+ estimated annual value to farmers

Future plans to expand the current webinar series are currently underway. Topics include Strengthening Aquaculture Associations, Aquaculture Business Development, Aquaculture Production Techniques, and Aquaponics. Registration can be found at www.ncrac.org. (continued on page 6)

Related Websites:

NCRAC.org
usaquaculture.org
thenaa.net

NCRAC webinar series (continued)

Because these webinars are archived, you too can gain valuable information to help you on your farm. A complete listing of these webinars can be found below:

- **Aquaponics: How to Do It Yourself**
- **Final Rule: Mandatory Inspection of Fish of the order Siluriformes and Products Derived from Such Fish**
- **Labeling Requirements for Siluriformes Fish USDA, Agricultural Marketing Service's Voluntary Catfish Grading Program and Standards**
- **What You Need to Know About Biosecurity**
- **How to Design Your Health and Biosecurity Plan**
- **Recreational Fish Pond Management**
- **The HACCP Approach to Prevent the Spread of Aquatic Invasive Species by Aquaculture and Baitfish Operations**
- **U.S. Farm-Raised Finfish and Shellfish 101**
- **Regulatory Costs of U.S. Aquaculture Business**
- **Branding Opportunities for Oyster Farmers**
- **Seafood in the Diet: Benefits and Risks for Farm Raised and Wild**
- **Use of Veterinary Feed Directive Drugs in Aquaculture**
- **Social Media: An Introduction for Successful Use**
- **Fish Health: What You Need to Know as an Aquaculture Producer**
- **Indoor Shrimp Farming**

Know when to purchase your feed trained largemouth bass fingerlings

By Matthew A. Smith, Extension Aquaculture Specialist, OSU South Centers; Anita M. Kelly, Extension Aquaculture Specialist, UAPB Fish Health Service; Luke A. Roy, Extension Aquaculture Specialist, Auburn University

Many fish farmers and state agencies manipulate when and where largemouth bass (LMB) spawn. By the time this publication is released, some LMB farmers in Arkansas will be getting close to wrapping up their spawning season for the year. Fish may have been spawned naturally or injected with hormones to induce spawning. As with any species, careful consideration on timing and the size of the fish desired must be made so that the purchaser only receives the highest quality of fish. This requires knowledge of the management techniques that are likely to occur before you receive your fish from the hatchery.

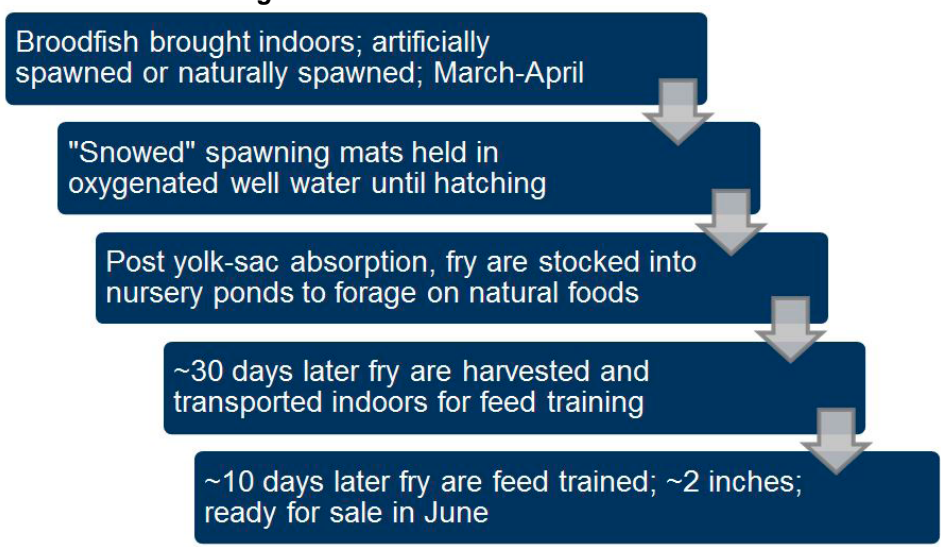
Although there are some differences, farmers who feed train LMB follow a very similar pattern to yellow perch farmers (Figure 1). Once yolk sacs are absorbed by the fish, they are stocked into newly-filled nursery ponds so that they can feed on natural food. After several weeks, fish (2 – 2.5 inches) are harvested and transported into the hatchery for feed training. Feed training generally takes less than two weeks. Following the timeline, these feed trained fish will be ready for sale in June. While summer temperatures are steadily rising at this time of year, this is the earliest that this year's stock will be ready, for most farms.

Depending on the market and farm, June fish may either be stocked back into ponds or held in vats (vats are essentially flow-through raceways for holding fish before shipment in which water enters one side and is flushed out the other). Vats allow farmers the time and space to acclimate fish to shipping water, clean their stomachs out prior to shipping, maintain optimal water quality, and allows for quick access and easy handling compared to large ponds. For those fish that are held in vats, quality of the animal is likely to degrade over time due to limited food (to keep them a desired market size), spacing, and other factors.

While purchasing larger fish later in the year is more expensive, this is often the management approach that farmers use, especially for those interested in growing them to a food fish size. Additionally, producers believe that fish will be ready an entire growing season earlier compared to fish that are purchased several inches smaller. While this can be a correct assumption, it is important to understand that fish that are slightly larger in size early in the year may have been held in a vat since the previous year. Fish not sold the previous year may also not be the best performing fish due to the possibility of being the “runts” (fish that fit through or maneuvered around the seine). Management decisions should be made to decide if either first year or second year cohorts are necessary. Many pond and lake management companies will likely request

and purchase various sizes, meaning a purchase of two separate cohorts. It is important to ask your supplier plenty of questions and order well in advance to avoid receiving any potential second-year runts. Communication is the key to success. Even though it is mid-April, order now to get your fish in June or later in the year to ensure that your fingerlings are from this spawning season. While spawning season varies depending on management, time of year, etc., considerations for when to order and obtain fish from suppliers are still the same, regardless of species.

Figure 1. Flow chart of LMB spawning and feed training by many farmers and state agencies.



Free OSU South Centers monthly aquaculture tours

Many Ohio aquaculture winter workshops have come and gone. Now that spring is here, the Extension program is receiving more inquiries about workshops and beginner information. There is currently only one more workshop that is being planned by Ohio State University Extension Aquaculture Program and the Ohio Aquaculture Association this summer. This workshop will focus on aquaculture economics and marketing on July 15. Dr. Carole R. Engle from Engle-Stone Aquatic\$ LLC will be the invited lecturer and more information will be available soon. However, the Extension program has free monthly aquaculture and aquaponic tours the first Friday of every month at the South Centers. These small-group tours are generally an hour and a half long and allows beginners, novices, and experts the opportunity to travel down to Piketon and get many of their questions answered.



...the Extension program has free monthly aquaculture and aquaponic tours the first Friday of every month at the South Centers.

Signing up for the tour is easy and free, but registration is strongly recommended. Click the following link to go to the registration page: southcenters.osu.edu/aquaculture/extension/aquaculture-tour. Our facilities are rather robust and include ponds, recirculating aquaculture systems, flow-through tanks, a hatchery, and an educational aquaponics system. OSU aquaculture tours have already proven useful to many, and a few first time visitors are now 2017 ABC-2 students! If you have any questions about registering then contact Sarah Strausbaugh at strausbaugh.54@osu.edu. All other questions can be directed to Matthew Smith at smith.11460@osu.edu.

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