Congressional Research Service
Informing the legislative debate since 1914

IN FOCUS

December 9, 2022

Farm Bill Primer: USDA Support for Aquaculture Operations

Aquaculture facilities that grow aquatic animal and plant species in *controlled or selected environments* (as defined as 7 U.S.C. §3101) are generally eligible for support from the U.S. Department of Agriculture (USDA) available to all U.S. farmers and ranchers and producers. In addition, the Agriculture Improvement Act of 2018 (the farm bill; P.L. 115-334) reauthorized and expanded provisions specifically related to USDA's aquaculture research and assistance programs. Congress may consider these and other related provisions as it starts to debate the next farm bill.

Overview of U.S. Aquaculture

Aquaculture is defined in statute as "the propagation and rearing of aquacultural species, including, but not limited to, any species of finfish, mollusk, or crustacean (or other aquatic invertebrate), amphibian, reptile, ornamental fish, or aquatic plant, in controlled or selected environments" (7 U.S.C. §3101). In practice, aquaculture systems refers to the propagation, breeding, rearing, and harvesting of animal and plant species using interventions such as seeding, stocking, feeding, and protection from predators.

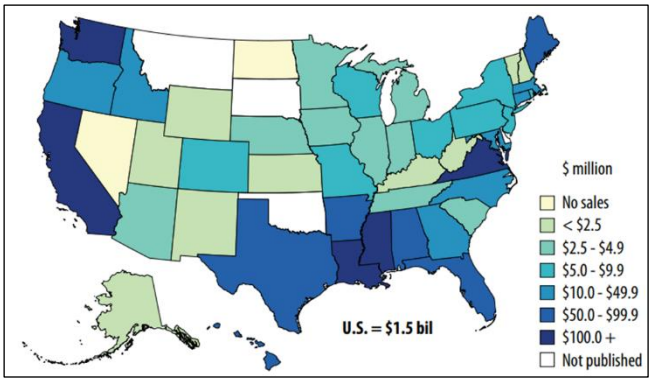
Aquaculture systems may be either land-based (e.g., above ground tanks, enclosed structures, or artificial ponds) or water-based (e.g., open sea cages, pens, or nets) in freshwater or saltwater (marine) environments. Marine aquaculture systems may take place in enclosures in the ocean or other waterways or on land in tanks or ponds. Aquaculture systems also include aquaponics that combine growing fish and plant species without soil or external fertilizer, using fish waste as a substitute for plant nutrient supplementation while continually recirculating water between the animal and plant growing systems. USDA reports that, based on acreage in 2018, U.S. aquaculture facilities are roughly split between freshwater (both surface and groundwater) and saltwater (ocean or estuary) systems.

USDA reports there were 2,932 aquaculture facilities located in the United States with total farm-level sales of $1.5 billion in 2018. Leading U.S. states with aquaculture facilities, based on sales in 2018, were Mississippi ($216 million in sales), Washington ($208 million), Louisiana ($136 million), Virginia ($113 million), California ($106 million), Alabama ($95 million), and Hawaii ($78 million) (**Figure 1**). According to USDA, aquaculture product types include food fish (such as catfish and trout), mollusks (oysters, clams, mussels), crustaceans (crawfish for food and saltwater scrimp), ornamental fish (such as koi), sport fish (bass and salmon), baitfish (such as fathead minnows), and other miscellaneous species (including algae, alligators, caviar, eels, frogs, snails, tadpoles, and turtles) (**Figure 2**).

USDA Aquaculture Support

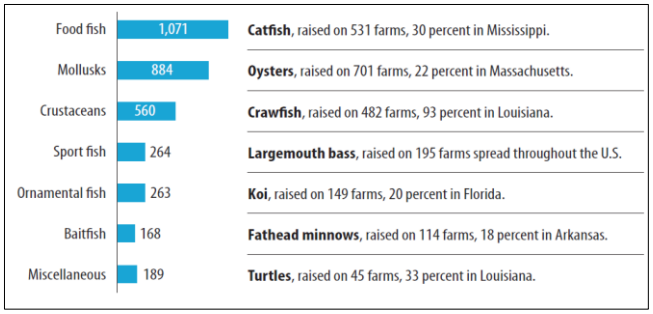
Federal authority supporting U.S. aquaculture is provided through the National Aquaculture Act of 1980 (NAA; P.L. 96-362; 16 U.S.C. 2801 et seq.). The act directs the Secretaries of Agriculture, Commerce, and the Interior to establish and implement a National Aquaculture Development Plan (NADP) to promote and support the development of U.S. aquaculture. The act also directs coordination among various federal agencies that have aquaculture programs and policies. The Subcommittee on Aquaculture (SCA) serves as the federal interagency coordinating group tasked with increasing the effectiveness and productivity of federal aquaculture research, regulation, technology transfer, and assistance programs, including the NADP. SCA is a statutory subcommittee that operates under the Committee on Environment of the National Science and Technology Council (NSTC) under the President's Office of Science and Technology Policy.

Figure 1. Aquaculture Sales by State, 2018



Source: USDA, *Census of Agriculture Highlights, Aquaculture*, ACH17-13, 2019, https://www.nass.usda.gov/Publications/Highlights/index.php.

Figure 2. Number of Farms and Product Type, 2018



Source: USDA, *Census of Agriculture Highlights, Aquaculture*, ACH17-13, 2019, https://www.nass.usda.gov/Publications/Highlights/index.php.
Note: Numbers shown in graph refers to the number of U.S. farms.

USDA assistance programs for aquaculture are contained within the National Agricultural Research, Extension, and

Teaching Policy Act of 1977 (7 U.S.C. §3324(a)(2) and §3322), which were reauthorized in the 2018 farm bill (P.L. 115-334, §§7510, 7133). The 2018 farm bill (§7614) also amended USDA's Aquaculture Assistance Grant Program (7 U.S.C. §3322(b)), which is administered by USDA's National Institute of Food and Agriculture (NIFA). Under the program, NIFA may award competitive grants to land- and sea grant colleges and universities, state agricultural experiment stations, and nonprofit private research institutions to conduct research and extension activities. USDA aquaculture assistance activities include researching and developing new aquaculture technologies; designing systems that promote healthy growing environments; developing improved genetics and on-land recirculating systems; protecting aquatic animal health (including the development of reliable supplies of seed stock and therapeutic compounds); training and educating aquacultural producers; facilitating or expanding production and marketing; and educating consumers on the nutritional benefits of farmed fish and seafood as well as the sustainability of responsible aquaculture production.

Aquacultural producers are also eligible for other USDA competitive grants available to all U.S. agricultural producers. For example, the Local Agricultural Marketing Program (LAMP; 7 U.S.C. §1627c), administered by USDA's Agricultural Marketing Service (AMS), includes a subprogram that provides grants to projects that develop, coordinate, and expand local and regional food business enterprises. A review of previously awarded LAMP grants indicates a number of projects have been funded supporting aquacultural marketing. Other support may be available through other USDA programs. These include grants for new and beginning farmers under the Farming Opportunities Training and Outreach program (7 U.S.C. §2279) as well as direct and guaranteed loans to family-sized farmers under USDA farm loan programs.

Aside from USDA, the National Marine Fisheries Service (NMFS) within the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA) oversees and supports U.S. marine aquaculture (e.g., farmed seafood including finfish and shellfish).

Farm Bill Considerations for Congress

In 2020, USDA hosted a colloquium *Aquaculture is Agriculture: USDA's Role in Supporting the Farmers of Fish, Shellfish, and Aquatic Plants*. Proceedings from the event summarize stakeholder recommendations for USDA related to U.S. aquacultural production. Stakeholder recommendations address research, animal health, environmental management, wildlife interactions, production innovation and technology, product and consumer marketing, and USDA support for aquaculture. The **text box** summarizes selected recommendations. Congress could consider some of these colloquium recommendations as it debates the next farm bill.

Congress might also consider aspects of legislation introduced in the 117th Congress as part of the Advancing the Quality and Understanding of American Aquaculture Act or the AQUAA Act (H.R. 6258/S. 3100). These proposals seek to establish: (1) standards for sustainable aquaculture in federal offshore waters in aquaculture opportunity areas; (2) a unified permitting and review process for aquaculture operations; (3) a grant program for research and development; and (4) an Office of Aquaculture within NOAA. Both H.R. 6258 and S. 3100 focus on efforts involving NOAA only and not USDA; therefore, these specific bill proposals may likely fall outside the jurisdiction of a farm bill. However, Congress could consider tasking USDA with providing preliminary information or with playing an evaluative role to support these or related proposals, or other activities that encourage improved coordination between USDA and NOAA. Congress also could consider expanding existing aquacultural research and development programs at USDA in ways that might support these efforts.

Selected Stakeholder Recommendations from 2020 USDA Colloquium

Aquaculture Production Research: Continue to support aquaculture production research, including efforts to educate consumers about the value of U.S. farm-raised seafood and marine plants; use technology to reduce financial risks to farmers; and reduce U.S. reliance on imports; and increase domestically produced/processed species in the market.

Aquatic Animal Health: Develop a national plan to support aquatic livestock health; address aquatic animal interstate and international trade issues; adapt current federal programs to cover diverse aquaculture species, production settings, and end uses; address diagnostic assay issues; increase accessibility to veterinarians knowledgeable in aquatic species; and develop and approve vaccines/drugs while removing regulatory redundancies.

Environmental Management: Ensure USDA staff know that aquaculture is eligible for farm programs; fill open extension positions and support extension funding; strengthen collaboration between USDA and NOAA's Sea Grant Marine Extension professionals; clarify USDA's environmental management roles; engage with the Environmental Protection Agency on water quality/quantity regulations; conduct research and technology transfer related to effluent reduction and treatment, water quality/conservation, and alternative materials; develop lifecycle analyses related to aquaculture's environmental impacts; advocate for aquaculture as a climate resilient approach to protein production; and update the regulatory framework related to the use of biotechnology for genetic improvement.

Aquaculture and Wildlife Interactions: Extend USDA resources to conduct bird experiments on freshwater ponds to include open-water shellfish farms.

Production Innovation and Technology: Expand USDA's production innovation and technology activities to address automation, noninvasive sampling, genetic improvement, closing lifecycles of nondomesticated species, and fish nutrition; and expand USDA educational and extension activities.

Product and Consumer Marketing: Expand opportunities for aquaculture items procured by USDA and explore options for aquaculture within federal domestic nutrition programs; and complete the development of organic production standards for aquaculture products.

Supporting Aquaculture: Deliver programs that support aquaculture and aquaponics; update and enhance USDA insurance products for aquaculture producers; and educate county, state, and national staff that "aquaculture is agriculture."

Source: CRS from *Aquaculture is Agriculture Colloquium: USDA's Role in Supporting Farmers of Fish, Shellfish, and Aquatic Plants,* 2020, https://www.usda.gov/sites/default/files/documents/aquaculture-agriculture-colloquim.pdf.

Renée Johnson, Specialist in Agricultural Policy

IF12275

Disclaimer