



**Agricultural Research Service  
U.S. Department of Agriculture**



# USDA Support for Shrimp Aquaculture

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# USDA: 8 Mission Areas 11 Offices 16 Agencies



**Farm Production and Conservation, FPAC (4)**



**Food, Nutrition, and Consumer Services, FNCS (1)**



**Food Safety, FS (1)**



**Marketing and Regulatory Programs, MRP (2)**



**Natural Resources and Environment, NRE (1)**



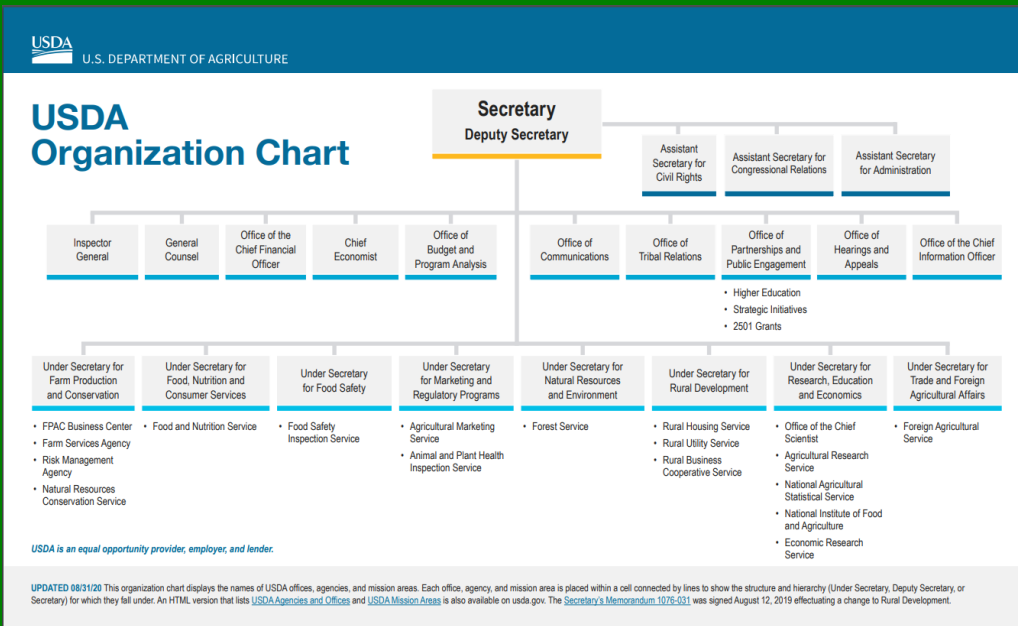
**Research Education and Economics, REE (4)**



**Rural Development, RD (3)**



**Trade and Foreign Agricultural Affairs, TFAA (1)**



Animals
Biotechnology
Broadband
Conservation
Coronavirus
Data
Disaster Resource Center
<b>Farming</b>
<b>Aquaculture</b>
Aquaculture is Agriculture
Coexistence
Crop Production
Crop and Livestock Insurance
Grants and Loans
New Farmers
Resources for Small and Mid-Sized Farmers
Food and Nutrition
Forestry
Health and Safety
Invasive Species
Opioids
Organic
Plants
Recreation
Research and Science
Rural
Trade
Urban Agriculture

Aquaculture is the production of aquatic organisms under controlled conditions throughout part or all their lifecycle. Its development can help meet future food needs and ease burdens on natural resources.



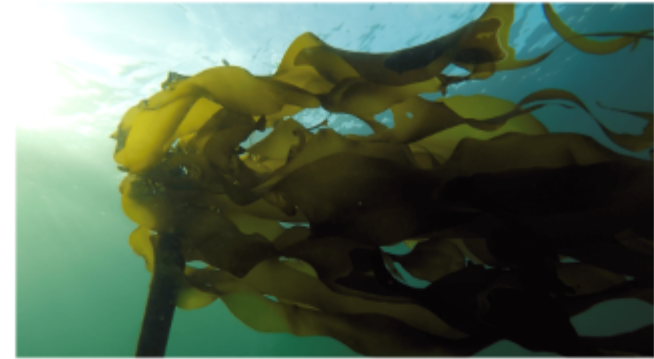
USDA is providing leadership to ensure that a healthy, competitive, and sustainable aquaculture sector can produce an abundant, safe, and affordable supply of seafood products. USDA scientists support and conduct research that develop new aquaculture technologies and systems that maintain healthy ecosystems, evaluate aquatic animal health, and inform consumers on the healthfulness and sustainability of responsible aquaculture production. Our aquaculture research, education, and extension activities also create jobs and train a skilled workforce in rural communities.



[The National Science and Technology Council \(NSTC\) Subcommittee on Agriculture](#) coordinates aquaculture activities with USDA and across the Federal Government. USDA coordinates activities within the Department through its Working Group on Aquaculture to:

1. *Continually Improve USDA Customer Service to Aquaculture Community; and*
2. *Provide USDA Support for a Federal Economic Development Initiative on Aquaculture.*

### [Aquaculture is Agriculture: USDA's Role in Supporting Farmers of Fish, Shellfish, and Aquatic Plants](#)



In the fall of 2020, the Research, Education, and Economics (REE) mission area, including the Office of the Chief Scientist (OCS), and the USDA Working Group on Aquaculture provided an opportunity for the domestic aquaculture industry to tell USDA how we can best serve this farming community. The USDA Aquaculture is Agriculture Colloquium drew over 300 participants from industry, academia, state agencies, tribal agencies, and federal agencies. A summary of the priorities identified in the Colloquium by aquaculture stakeholders, federal program managers, the research community, natural resource regulators, and others to help guide future program directions and potential investments may be found in this [white paper](#) (PDF, 546 KB).

Seventeen USDA Agencies fall under eight Mission Areas to support aquaculture through their leadership in the following programs. USDA primarily supports aquaculture through the programs administered in the following Mission Areas and Agencies.

- ✓ Mission Area: Food Safety
- ✓ Mission Area: Marketing and Regulatory Programs (MRP)
- ✓ Mission Area: Food, Nutrition, and Consumer Services
- ✓ Mission Area: Farm Production and Conservation (FPAC)
- ✓ Mission Area: Trade and Foreign Agricultural Affairs (TFAA)
- ✓ Mission Area: Research, Education, and Economics (REE)
- ✓ Mission Area: Rural Development (RD)

<https://www.usda.gov/topics/farming/aquaculture>

- ▼ Mission Area: Food Safety
- ▼ Mission Area: Marketing and Regulatory Programs (MRP)
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▼ Mission Area: Food Safety

▲ Mission Area: Marketing and Regulatory Programs (MRP)

Marketing and Regulatory Programs facilitates domestic and international marketing of U.S. agricultural products and ensures the health and care of animals and plants. MRP agencies are active participants in setting national and international standards.

**Agricultural Marketing Service (AMS)** administer programs that create domestic and international marketing opportunities for U.S. producers of seafood. AMS also provides the aquaculture industry with valuable services to ensure the quality and availability of wholesome food for consumers across the country.

- Under the [1996 Commodity Promotion, Research and Information Act](#) both the Secretary and Industry Organizations could propose [checkoff programs](#) that would support research and/or marketing programs.
- AMS could continue procuring aquacultured commodities for federal nutrition assistance programs.
- AMS could develop organic standards for aquaculture under the [National Organic Program](#).

**Contact:** [Melissa R. Bailey](#), Ph.D., Associate Deputy Administrator, Livestock & Poultry Program

**Animal and Plant Health Inspection Service (APHIS)** mission area includes protecting and promoting U.S. agricultural health and administering the Animal Health Protection Act.

- APHIS serves as the lead Federal agency for preventing, controlling, and eliminating aquatic animal diseases and for oversight of aquatic animal health programs. This Act gives the Secretary of Agriculture the authority to regulate imports, exports, and interstate commerce of all animals and their pests/pathogens should they pose a risk to domestic livestock.
- APHIS is the competent authority to lead and negotiate import and export animal health requirements in order to protect domestic livestock and natural resources.
- APHIS houses the Chief Veterinary Medical Officer (CVO) for the U.S who is responsible for reporting detections of all OIE listed pathogens.
- The Secretary has the authority to hold, seize, treat, or prohibit and restrict the movement of any farm-raised animals including those cultured in the exclusive economic zone (EEZ).

**Contacts:**  
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[Alicia R Marston](#), Live Animal Imports & Exports- Aquaculture Specialist, Veterinary Services

▼ Mission Area: Food, Nutrition, and Consumer Services

▼ Mission Area: Farm Production and Conservation (FPAC)

# Aquaculture *is* Agriculture Colloquium



*USDA's Role in Supporting Farmers of  
Fish, Shellfish, and Aquatic Plants*

- Hosted by 12 USDA Agencies
- Listening Sessions for Input on:
  - Aquaculture Production Research
  - Aquatic Animal Health
  - Environmental Management
  - Aquaculture and Wildlife Interactions
  - Production Innovation and Technology
  - Product and Consumer Marketing
  - Supporting Aquaculture
- 35 Recommendations to USDA
- <https://www.usda.gov/topics/farming/aquaculture/aquaculture-agriculture>

# 2022 Census of Agriculture

- USDA National Agricultural Statistics Service
- 5,961 Aquaculture farms with sales >\$1000, 1,900,487 farms in US
- \$2,270,147,000 Farm Gate value
- .3% of farms
- .4% value of agricultural products sold
- 5350 farms, \$1,778,587,000 in 2017

## 2022 CENSUS OF AGRICULTURE

United States  
Summary and State Data  
Volume 1 • Geographic Area Series • Part 51

AC-22-A-51

Issued February 2024

United States Department of Agriculture  
**Tom Vilsack**, Secretary  
National Agricultural Statistics Service  
**Hubert Hamer**, Administrator

**Table 31. Aquaculture Sales: 2022 and 2017**

[For meaning of abbreviations and symbols, see introductory text.]

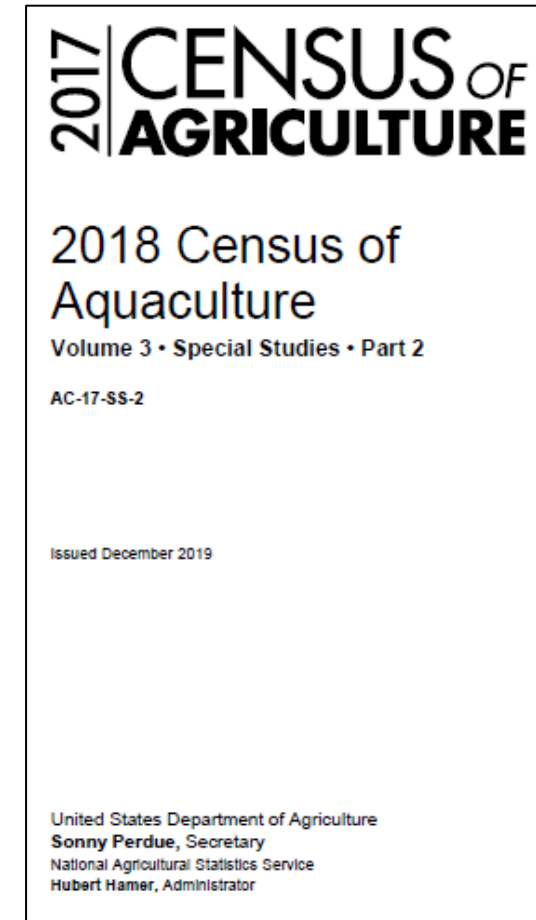
Item	2022		2017	
	Farms	Value (\$1,000)	Farms	Value (\$1,000)
Catfish .....	646	428,754	921	404,861
Trout .....	836	299,488	947	286,330
Other food fish .....	756	327,772	721	282,627
Baitfish .....	320	56,361	252	44,247
Crustaceans .....	1,108	200,613	798	96,397
Mollusks .....	1,535	545,479	1,175	354,274
Ornamental fish .....	422	82,653	469	49,918
Sport or game fish .....	680	139,574	631	115,340
Other aquaculture products .....	502	189,452	352	144,592

**\*No shrimp specific data**

**Crabs, lobsters, crawfish, prawns, shrimp, & “other”**

# 2022 Census of Aquaculture

- **USDA National Agricultural Statistics Service**
- **Follows Census of Agriculture**
- **Volume 3 Special Studies Part 2 Issued December 2019**
- **Every five years, higher level of resolution, following the Census of Agriculture**
- **Tracks information from farmers who responded to the Census of Agriculture**
- **December 16, 2024**





## 2018 USDA NASS Census of Aquaculture Table 18. Crustacean Sales by Species: 2018 and 2013, Shrimp, Saltwater

	2018		2013	
	Farms	Sales	Farms	Sales
<b>United States</b>	<b>39</b>	<b>\$45,626,000</b>	<b>56</b>	<b>\$43,214,000</b>
Alabama	1		8	
Colorado	1			
Florida	11		9	
Georgia			2	
Hawaii	10		7	
Idaho	1			
Illinois			1	
Iowa	2		2	
Kentucky	2			
Louisiana			9	
Maryland			1	
Massachusetts			1	
Minnesota	1		1	
Missouri	2			
Nebraska	1			
New Hampshire	2			
Ohio	1			
South Carolina			3	
Texas	4		9	
Virginia			1	
Washington			2	

# 2020 FISHERIES OF THE UNITED STATES

May 2022



**NOAA  
FISHERIES**

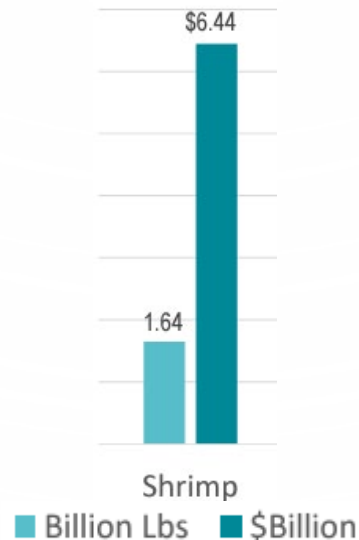


National Marine Fisheries Service, Office of Science and Technology, NOAA, Department of Commerce

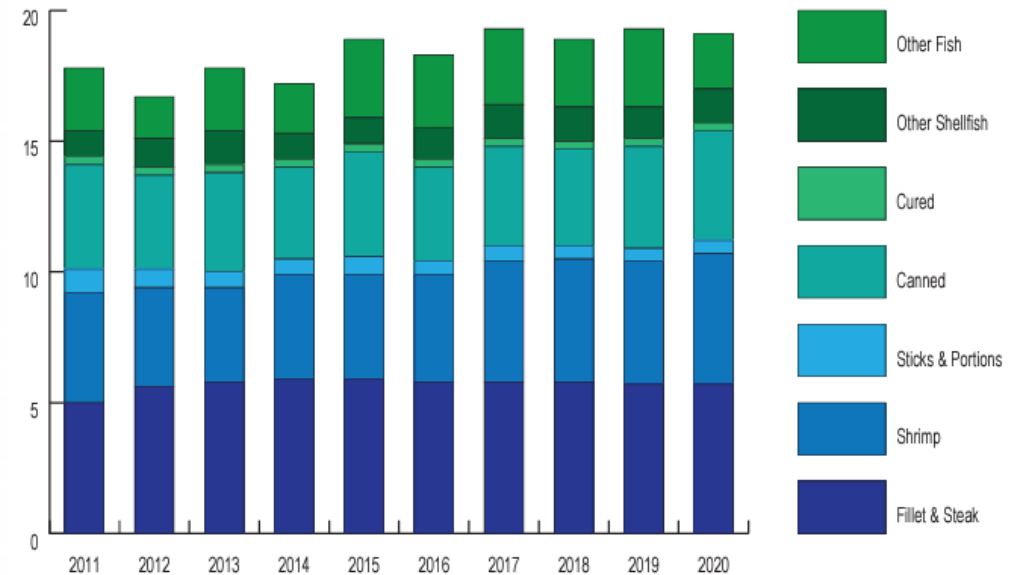
## Estimated U.S. Aquaculture Production

Species	2018			2019		
	Thousand pounds	Metric tons	Thousand dollars	Thousand pounds	Metric tons	Thousand dollars
<b>Freshwater:</b>						
Catfish	350,343	158,915	341,915	347,990	157,847	361,910
Striped bass	8,688	3,941	32,800	8,688	3,941	3,941
Tilapia	14,436	6,548	37,986	14,436	6,548	37,986
Trout	49,316	22,370	95,856	33,778	15,322	66,292
Crawfish	160,235	72,682	210,595	162,426	73,676	223,630
<b>Total Freshwater</b>	<b>583,018</b>	<b>264,455</b>	<b>719,152</b>	<b>567,318</b>	<b>257,334</b>	<b>693,758</b>
<b>Marine:</b>						
Salmon	36,355	16,491	66,536	31,931	14,484	64,262
Clams	10,778	4,889	122,119	10,714	4,860	122,038
Mussels	862	391	9,883	952	432	11,479
Oysters	44,729	20,289	219,234	42,311	19,192	221,217
Shrimp	4,486	2,035	12,556	4,486	2,035	11,215

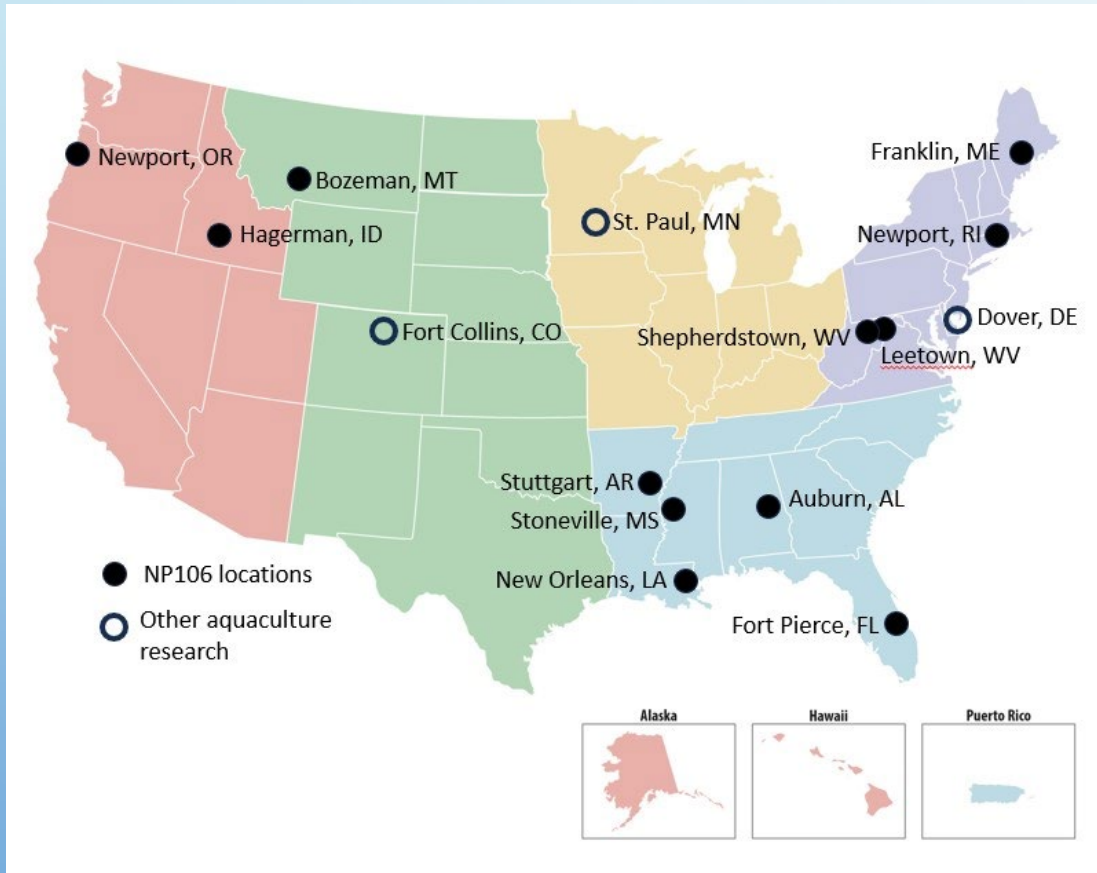
## Imports



U.S. Per Capita Consumption by Product Type, 2011-2020 (lbs per person)



# ARS AQUACULTURE NATIONAL PROGRAM 106



- AQUACULTURE 1/15 NATIONAL PROGRAMS
- FOOD SAFETY, CROPS, HUMAN NUTRITION, ANIMAL PRODUCTION
- 15 “PERMANENT” PROJECTS
- 67 SCIENTISTS
- 15 FUNDED COLLABORATORS
- 17 LABORATORY SITES
- 14 STATES



# ARS ROLE



- Inherently Federal
- Work with stakeholders to identify constraints to improving production, production efficiency, product quality, healthfulness, sustainability and/or animal welfare ***that we have the resources and expertise to address***
- Develop science-based approaches that complement industry efforts and capacity for problem solving
- Conduct Research and Technology Transfer
- Focus on pre-competitive research that can be facilitated through partnering, including public-private partnerships
- Accountability for taxpayer funds spent on projects



# RESEARCH PRIORITIES



- **Presidential and Secretary Initiatives**



- **Congress**



- **Customers/Stakeholders**
  - **Producers**
  - **Support Industries**
  - **Allied Organizations**

# Stakeholder Driven Research

*What is needed from ARS that we have the expertise and capacity to provide?*

- Genetics
- Nutrition
- Pests and Pathogens
- Management Practices
- Systems
- Product Quality

The screenshot shows the homepage of the National Aquaculture Association. At the top, the logo reads "NATIONAL Aquaculture ASSOCIATION". Below the logo is a navigation bar with four main sections: "LEARN About Aquaculture", "FIND American Products", "ENJOY Delicious Recipes", and "JOIN Membership Information". Each section has a "Read More", "Search the Directory", "Get Cooking", or "Learn More" link. The main content area features four columns: 1. "ONE INDUSTRY, ONE VOICE" with a mission statement: "The National Aquaculture Association's Mission is to provide a unified national voice for aquaculture that ensures its sustainability, protects its profitability, and encourages its development in an environmentally responsible manner." 2. "Aquaculture is Agriculture" with a paragraph: "U.S. aquaculture farms produce a huge variety of aquatic products that provide local jobs to thousands of rural, working waterfront and urban communities all across the nation. In 2017, 5,350 U.S. aquaculture farms produced \$1.7 billion in farmed products." 3. "Local and Healthy" with a paragraph: "Imported seafood travels thousands of miles to reach your plate with a high carbon footprint and less stringent safety regulations and inspections. Local, safe and fresh U.S. farmed seafood is low in calories and high in vitamins, minerals and fatty acids. AHA recommends 2 serving per week." 4. "Sustainable and Secure" with a paragraph: "U.S. farmers depend upon high quality water to make a living and are regulated at the federal, state and local level to ensure environmental sustainability. The U.S. imports 70-85% of the seafood we consume. Buying U.S. is the right choice for national security and the environment." Each column has a corresponding button: "About Aquaculture", "About Safety", and "About Sustainability".

<https://www.nationalaquaculture.org/>



## Action Plan Components

- 1) Improving the Efficiency and Sustainability of **Catfish** Aquaculture
- 2) Improving the Efficiency and Sustainability of **Salmonid** Aquaculture
- 3) Improving the Efficiency and Sustainability of **Bass and Baitfish** Aquaculture
- 4) Enhancing **Molluscan and Crustacean** Aquaculture
- 5) Developing **Marine Finfish** Seedstocks
- 6) Developing Sustainable **Aquaponic** Production Systems
- 7) Enhancing **Tilapia** Aquaculture Production

# REDUCING ON-FARM LOSSES TO DISEASE IN CRUSTACEAN AQUACULTURE

**AUBURN, AL 2025 - 2029**

- INPUT FROM FARMERS, APHIS, AND CONGRESS
- PRIMARY CUSTOMERS ARE SHRIMP AND CRAWFISH PRODUCERS
- COLLABORATION WITH AUBURN UNIVERSITY

**OBJECTIVE 1:** DEVELOP STRATEGIES TO PREVENT WHITE SPOT SYNDROME VIRUS AND *VIBRIO* SPP. OUTBREAKS IN CRUSTACEAN AQUACULTURE.

**OBJECTIVE 2:** IDENTIFY CONSTRAINTS TO INTENSIFIED SHRIMP AQUACULTURE PRODUCTION ASSOCIATED WITH ACUTE AND LATE-TERM MORTALITIES.

- DIAGNOSTICS FOR WSSV ISOLATES, FUNCTIONAL FEEDS, IDENTIFY FACTORS ASSOCIATED WITH LATE TERM MORTALITY, LOW SALINITY PRODUCTION PRACTICES, DIETARY FORMULATIONS IMPROVE WELL-BEING



# National Aquaculture Policy

“Congress declares that aquaculture has the potential for reducing the United States trade deficit in fisheries products, for augmenting existing commercial and recreational fisheries, and for producing other renewable resources, thereby assisting the United States in meeting its future food needs and contributing to the solution of world resource problems. *It is, therefore, in the national interest, and it is the national policy, to encourage the development of aquaculture in the United States.*”

**National Aquaculture Act 1980**

# National Strategic Plan for Aquaculture Research (2022)

[www.ars.usda.gov/sca](http://www.ars.usda.gov/sca)

- **Goal 1. Develop Economic Growth through Aquaculture**
  - Objective 1.1: Identify market opportunities for U.S. aquaculture products
  - Objective 1.2: Enable science-based expansion of domestic aquaculture
  - Objective 1.3: Educate and train a skilled aquaculture workforce
- **Goal 2. Improve Aquaculture Production Technologies and Inform Decision-making**
  - Objective 2.1: Provide farmers with access to improved genetics
  - Objective 2.2: Develop production technologies that minimize environmental impacts
  - Objective 2.3: Advance fish nutrition and feed production technologies
  - Objective 2.4: Improve engineering systems for aquaculture
- **Goal 3. Uphold Animal Well-Being, Product Safety, and Nutritional Value**
  - Objective 3.1: Develop strategies to protect the health and well-being of aquaculture species
  - Objective 3.2: Promote the safety and nutritional value of U.S. aquaculture products



A NATIONAL STRATEGIC PLAN FOR  
AQUACULTURE RESEARCH

A Report by the Science Planning Task Force  
SUBCOMMITTEE ON AQUACULTURE  
COMMITTEE ON ENVIRONMENT  
of the  
NATIONAL SCIENCE & TECHNOLOGY COUNCIL

2022



# National Strategic Plan for Aquaculture Research (2022)

[www.ars.usda.gov/sca](http://www.ars.usda.gov/sca)

- Inclusive of commercial (i.e., food production, ornamental), conservation and recreation aquaculture
- Freshwater and marine
- Finfish, shellfish and macroalgae
- Describes Federal research capacity
- Action items by Agency
- Draws on existing resources and capacity
- Annual reporting by agency in one report
- Updates at Aquaculture America Federal Town Hall
- Written in parallel with the Regulatory Efficiency Plan
- 1/3 plans that will be an update of the National Aquaculture Development Plan (1983)
- Complement Regulator Efficiency and Economic Development Plans as part of updated National Aquaculture Development Plan





**INTERAGENCY SCIENCE  
COORDINATION AND  
COLLABORATION**

**Goals**

Address High Priority Challenges

Optimize Use of Existing Federal Resources

Identify Areas of Collaboration

Avoid Duplication

Products greater than sum of parts

Maximize impact



# Summary

- **ARS CONDUCTS AQUACULTURE RESEARCH FOR FRESHWATER AND MARINE FISH AND SHELLFISH**
- **RESEARCH DIRECTED BY GUIDANCE FROM CONGRESS AND THE ADMINISTRATION, INFORMED BY PRODUCERS**
- **PARTNERSHIPS ARE A CRITICAL COMPONENT OF OUR PROGRAM**
- **ARS HAS ONE PROJECT FOCUSING ON SHRIMP AQUACULTURE**
- **NIFA SUPPORT AQUACULTURE RESEARCH (BASIC AND APPLIED, SBIR), ERS CONDUCTS AQUACULTURE ECONOMIC RESEARCH, NASS HAS CENSUS AND SURVEYS**
- **MANY OTHER RELEVANT PROGRAMS ACROSS 7 MISSION AREAS RELATED TO MARKETING, HEALTH, CONSERVATION, RISK MANAGEMENT, FARM SERVICES, NUTRITION, ETC...**