USDA Agricultural Research Service
National Program 106
Aquaculture

Executive Summary

In 1980 Congress declared through the National Aquaculture Act "… 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." The USDA ARS National Program (NP) 106 – Aquaculture conducts research and transfers technologies to facilitate the economically and environmentally sustainable expansion of the U.S. domestic aquaculture industries producing finfish, shellfish, and seaweeds.

This report summarizes achievements of NP106 scientists during fiscal years 2018 – 2022. Research in fiscal years 2018 and 2019 fell under the previous National Program Action Plan with Components and Problem Statements focusing on scientific disciplines such as breeding, nutrition, health, and production systems. The 2020 update of the Plan primarily aligns Components by species, with Problem Statements focusing on improving production efficiency, health, and product quality. In response to new funding and guidance provided by Congress, this plan was amended in 2019 and 2021 to reflect new projects in warmwater marine finfish and aquaponics, respectively. As resources for each Component allow, research themes include genetics and breeding, genomics, growth and reproductive physiology, nutrition, health, product quality and production systems. This report aligns scientific achievements under the framework of the amended National Program Action Plan for Aquaculture 2020 – 2024.

As documented in the National Program Action Plan, ARS Aquaculture scientists conduct stakeholder driven research within the guidance and funding provided by Congress. Although the program adheres to a five-year strategic planning cycle, ARS is also able to direct research capacity towards new and emerging industry challenges and lend expertise to other programs or organizations that support the responsible expansion of domestic aquaculture. Our formal projects focus on catfish, Atlantic salmon, rainbow trout, hybrid striped bass, shrimp, oysters, and marine water finfish, however this report will also highlight results of collaborations targeting additional aquaculture species.