

Executive Summary

The Alaska Fisheries Development Foundation contracted with McDowell Group to develop an economic framework for Alaska mariculture industry development. This framework, based on analysis of the current industry and potential industry growth scenarios, is designed to inform the Alaska Mariculture Task Force's comprehensive planning process and establishment of a more viable and sustainable industry.

Key Findings

Oysters dominate today's Alaska mariculture industry. Potential is growing for other species.

- Alaska mariculture industry today is focused on four main species: Pacific oysters, blue mussels, geoducks, and sugar kelp.
- Alaska mariculture production is dominated by oysters, accounting for over 90 percent of Alaska aquatic farm sales in 2015.
- Additional species with potential for mariculture/enhancement in Alaska include king crab, sea cucumbers, abalone, clams, purple-hinged rock scallops, weathervane scallops, and sea urchins.



Photo credit: Bob Koenitzer.

Alaska mariculture industry production and value is trending up.

- Oyster farm size and inventory, and oyster seed inventory, are increasing in Alaska, which suggests oyster production may increase substantially in the near future.
- While current farmed geoduck harvests are minimal in Alaska, geoduck farm inventory is potentially highly valuable, with over 900,000 clams to reach harvestable size over the coming decade.
- Most mussel production and sales in Alaska are incidental, as farmers of other species harvest mussels that naturally set on their gear. Mussels may serve as a source of supplemental income on oyster farms. In-state demand for mussels appears robust, and well above current production, at potentially 70,000 pounds or more annually.
- Kelp farming is just developing in Alaska, with harvests beginning in 2017 and one large-scale seaweed buyer operating in the state. Permit applications for 2017 indicate increasing kelp production on the horizon.

Seed security, profitability, regulations, market access, and data/information needs are critical challenges to industry growth.

The Alaska mariculture industry is small in scale, at approximately \$1 million in output, relative to Alaska's commercial fisheries and seafood processing sectors and to mariculture industries in other states and nations. Investment in overcoming these hurdles for the industry will require a balance of private and public resources.

SEED SECURITY

- Investment, perhaps through public/private partnerships, in securing viable and consistent in-state sources of quality seed, particularly for oysters, kelp, and geoducks is critical for industry growth.

OPERATING COSTS/PROFITABILITY

- Start-up costs, financing constraints, long product grow-out times, logistical challenges in remote locations, and regulatory factors are some of the many challenges that can result in expenses that challenge the profitability of many operations.

REGULATIONS

- No Alaska statutes currently authorize shellfish stock restoration, rehabilitation, or enhancement other than for research.
- Some State regulations impacting mariculture operations are not aligned with operating realities, such as long product grow-out times.
- Seaweed-specific permitting needs revision.



Photo credit: NOAA.

ACCESS TO MARKETS

- Most Alaska mariculture product is currently sold to in-state markets. Growth will require much greater market penetration outside of Alaska.
- To reach out-of-state markets, Alaska farmers will need to provide a dependable supply of high-quality product, utilize affordable transportation options to reach markets, and develop capacity to produce product forms, such as frozen product, suitable for lower-cost transport to more distant market.

INFORMATION NEEDS

- Reliable access to data on environmental conditions, product growth factors, economics, and food safety considerations (such as PSP) allows users to analyze sites for productivity, conflicting uses, and efficiency and more effectively plan and operate businesses.

A balance of public and private investment focused on overcoming key industry challenges can position the Alaska mariculture industry for expansion in the coming decades.

- While private investment in mariculture will be critical to industry growth, some required investment, such as hatchery development to enhance seed security, or to support king crab hatchery R&D, does not or may not offer the profit incentive needed to attract private investment.
- Government support for the industry, such as that which has resulted in mariculture industry expansion in other countries and can lead to private investment, is essential for the industry to expand at a pace and scale commensurate with its full potential.

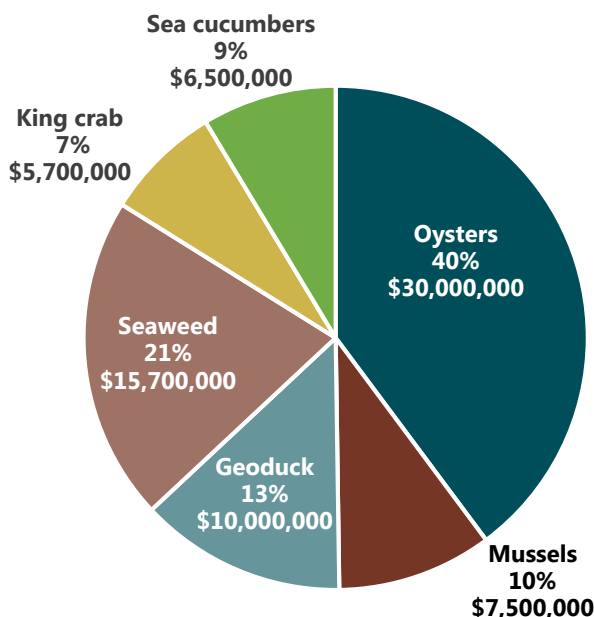
With strategic investment in overcoming current challenges, the Alaska mariculture industry could grow to a \$100 million industry in the next 20 years.

- Species with greatest mariculture development potential (both farming and enhancement) in Alaska in the next 20 years include oysters, mussels, geoduck, kelp, king crab, and sea cucumbers.
- The economic framework outlined in this report establishes 20-year revenue and production goals that result in \$105 million in annual output, including all direct, indirect, and induced effects.
- This 20-year goal includes \$75 million in industry sales and an employment impact of 1,100 direct jobs and 1,500 total jobs.

Long-Range (20-Year) Annual Production Goals

- Pacific oysters (count): 45 million
- Geoducks (count): 500,000
- Kelp (lbs./wet): 19.2 million
- Kelp (lbs./dried): 2.9 million
- Blue mussels (lbs.): 1.8 million
- Red king crab (lbs.): 565,000
- Sea cucumbers (lbs.): 1.9 million

Twenty-Year Annual Revenue Goals



- At 20 years, annual labor income would include approximately \$38 million in direct wages and a total of \$49 million in direct, indirect, and induced labor income.
- 30-Year output associated with goals in this economic framework is projected at \$274 million, while 50-Year output totals \$571 million.
- This analysis concludes with a table of priority investments to grow the mariculture industry.