

Overarching Narrative

Coalition Vision

Vision: Develop a viable and sustainable mariculture industry producing shellfish and seaweed for the long-term benefit of Alaska's economy, environment, and communities.

Goal: In 2017, the Alaska Mariculture Task Force set a goal to grow a \$100 million per year industry in 20 years, with employment impact of 1,100 direct jobs and 1,500 total jobs. Due to rapidly growing market opportunities and with substantial EDA and coalition partner investment, an increased goal is warranted. The updated goal is to grow a \$100 million industry in ten years and \$325 million industry in 20 years, with corresponding direct, indirect, and induced FTE job goals of 550 FTE jobs in 10 years and 1,800 FTE jobs in 20 years.

Coalition Members: The lead institution will be Southeast Conference (SEC) including a Regional Economic Competitiveness Officer. Other coalition members are: State of Alaska (SOA), Prince William Sound Economic Development District (PWSEDD), Kenai Peninsula Economic Development District (KPEDD), Southwest Alaska Municipal Conference (SWAMC), Central Council of the Tlingit and Haida Indian Tribes of Alaska (CCTHITA), Alaska Mariculture Alliance (AMA), University of Alaska Fairbanks (UAF, including Alaska Sea Grant (ASG) and the Mariculture Research and Training Center (MRTC)), University of Alaska Anchorage (UAA), University of Alaska Southeast (UAS), Alaska Fisheries Development Foundation (AFDF), and Alaska Longline Fishermen's Association (ALFA).

Component Projects:

- 1) Revolving Loan Fund** – provide accessible capital to expedite private investment in mariculture by reducing barriers for new businesses in the mariculture sector – *lead by SEC*
- 2) Governance, coordination and outreach** – provide governance and project management; build existing efforts to coordinate priorities and activities across stakeholders; continue to improve public understanding and acceptance for mariculture development– *lead by SEC*
- 3) Workforce development to support industry growth** – expand existing programs and create new programs within the University and Alaska Sea Grant network, including cooperative programs with tribes, vocational education and high schools– *lead by SEC*
- 4) Research & Development** - create technology innovation competition for specific challenges to mariculture development - *lead by SEC*
- 5) Marketing** - build capacity to develop innovative new products from mariculture; grow market demand for new mariculture products including carbon removal products -*lead by SEC*
- 6) Green Energy** - provide planning and technical support for short and long-term adoption of green energy improvements (efficiency, renewables, infrastructure) - *lead by SEC*
- 7) Equipment & Technology** – solve the chicken-or-egg problem of supply and demand of shellfish and seaweed seed, by integrating and maximizing existing capacity, as well as building additional hatchery and nursery facilities – *lead by SEC*

8) SEC Grant Management & Administration - Southeast Conference as Lead Entity on all 8 projects will manage and administer each project on behalf of the AMC - *lead by SEC*

Alaska has many strengths that make it well suited for mariculture development: clean and abundant waters, a reputation for sustainably managed resources, the skills and abilities of coastal Alaskans who work on the water, the cultural knowledge of Alaska Natives, an existing seafood industry and infrastructure, the Alaska Seafood brand established by the Alaska Seafood Marketing Institute, and a state regulatory process and agencies that are accessible and supportive. Along with these strengths come challenges. A statewide comprehensive economic development plan (CEDS) for this industry (the [Alaska Mariculture Development Plan](#)), a [Five-Year Action Plan](#), and the [Final Report to Governor Dunleavy](#), all produced by the Alaska Mariculture Task Force between 2018 and 2021, identified the challenges and systemic barriers to development which have been incorporated as the basis of the component projects (above). These component projects are interrelated and purposefully linked to provide joint impact that is larger than the sum of the parts. **Error! Filename not specified.**

In 1988, the Alaska Dept. of Natural Resources published a report, *Etolin Island Area Mariculture Pilot Project*, which documented the history of oyster farming in Alaska going back to 1910 (pg.6), yet it still remains small scale (\$1.5 million total revenues in 2019). Because of the scale, many chicken-or-egg scenarios must be overcome in order to reach a scale of profitability where continued growth will occur. ***Without the public investment by the EDA BBB grant, the mariculture industry will likely grow slowly and remain small scale.***

As well as aligning with the [Alaska Mariculture Development Plan](#), this cluster also aligns with the CEDS for each of the EDDs ([SEC](#) - pgs. 2, 11, 24, 41-43, [PWSEDD](#) – pgs. 8, 32, 41, 44, 58, [KPEDD](#) – pgs. 39-50, [SWAMC](#) – pgs. 1, 4, 5, 7), and the State of Alaska (pgs. 2, 11, 24, 41-43).

Complementary Initiatives: The Alaska Mariculture Cluster entities received support to date from the State of Alaska, Exxon Valdez Oil Spill (EVOS) Trustee Council, NOAA Fisheries, and USDOE's ARPA-E. The previous two Governors had public initiatives to support the industry, two mariculture bill signing ceremonies, as well as budgeting for two new staff positions in the Alaska Dept. of Natural Resources and one within the University of Alaska. EVOS Trustee Council approved approximately \$32 million of mariculture research over the next 10 years. NOAA Fisheries hired two new positions – Alaska Regional Aquaculture Coordinator and Mariculture Researcher - increasing long-term capacity and stability to development efforts. NOAA also created an Alaska Aquaculture Permitting Portal online to improve permitting efficiency. ARPA-E funded over \$3 million to a MARINER program in Alaska focused on increasing the efficiency of growing and harvesting seaweed toward the future potential of biofuels. Additionally, Coalition partners intend to apply for USDA's latest \$1 billion program, [Partnerships for Climate-Smart Commodities](#). None of these efforts are overlapping with the projects proposed here.

Metrics (annual): Production of shellfish and seaweed products (volume and value), jobs created and retained (#), seed (# shellfish, # feet seeded line), species commercially grown (#),

species experimentally grown (#), new product forms (#), companies farming and processing (#), carbon dioxide removed (tons), tribes/Alaska Native entities and rural communities involved (#), reduction of diesel fuel used, attendance at workshops/training/course enrollment (#, % Alaska Native, % rural), AMA & Governance Body meetings (#), mariculture conferences held (#), and private sector investment (\$).

Timeline: Phase 2 component projects will be implemented through a multi-stage approach over 4 years, Oct. 1, 2022 – Sept. 30, 2026, which allows Oct. 1, 2026 – Sept. 30, 2027 sufficient time to submit applicable close-out documentation, final reporting and reimbursement. Year 1 = component preparation: feasibility studies, RFP development, public outreach, program development and pilot launches, equipment purchases, construction design, stakeholder meetings and outreach. Years 2-4 = component implementation: issue and award RFPs, build out of programs, and equipment installation.

Project Location

The cluster is focused on southern coastal Alaska (Southeast (SE), Prince William Sound (PWS), Kenai Peninsula (KP), Southwest (SW)) where there are waters appropriate for mariculture development – as well as the existing seafood industry participants, infrastructure, and vessels which already operate and move across communities to access fishery resources. See attached FIPS code spreadsheet for a list of counties, as directed by EDA staff.

The Coalition Members are a broad network of entities that represent the following target stakeholder groups and partners across coastal Alaska: four regional EDDs, the State of Alaska, Alaska Native tribes and corporations, local governments, shellfish and seaweed hatcheries/nurseries, private businesses (i.e. mariculture farmers, commercial fishermen, and seafood processors), and the network of training and workforce development centers.

A major regional asset for attaining this project's vision and goal is the significant scale, and social and economic impact of Alaska's existing seafood industry, which is the state's largest private sector employer. In 2018, the total economic output of Alaska's seafood industry was \$5.6 billion, including approximately 60,000 jobs ([Economic Value of Alaska Seafood Industry, pg. 4](#)). Alaska produces more seafood than the rest of the U.S., and if Alaska were a country, it would be in the top 10 for seafood production. The existing infrastructure, workforce, markets, and Alaska Seafood brand can be utilized in the development of the mariculture industry to a similar size and scale, given time and resources.

More specific regional assets critical to the success of the Alaska Mariculture Cluster are listed below:

- **176 shoreside seafood processing facilities** ([pg. 8](#)), including 10 facilities owned and operated in separate coastal Alaska communities by Trident Seafoods
- **9,000 registered commercial fishing vessels** ([pg. 3](#)), approximately 8,500 of which are under 60 feet in length, including vessels owned by members of ALFA and AFDF

- **Science centers:** Kodiak Seafood and Marine Science Center (KSMSC), Prince William Sound Science Center (PWSSC) and Sitka Sound Science Center (SSSC) research and education facilities
- **University of Alaska (UA) system-wide:** training programs and research facilities
- **Five NOAA research laboratories in Alaska:** Kodiak, Kasitsna Bay, and Auke Bay Labs, Ted Stevens Marine Research Institute, Little Port Walter Research Station
- **Shellfish and seaweed hatcheries and nurseries:** Alutiiq Pride Marine Institute (Seward), Blue Starr Oyster Company (Craig), Blue Evolution (Kodiak), Kachemak Shellfish Mariculture Association (Homer), OceansAlaska (Ketchikan)
- **110 existing aquatic farms and new lease applications:** covers over 2,500 acres

Detailed Overview – Private Sector Participation

See individual letters of commitment from each of the private sector partners listed below for more details on their extensive participation commitments and planned investments if this project is funded.

Alaska Native Corporations: Sealaska Corporation (\$100,000 in-kind match), Spruce Root (\$1 million match).

Businesses - Aquatic Farmers, Food Manufacturer / Processor: Kelptastic (\$20,000 in-kind match), Kelp Blue Alaska (140 jobs), Macro Oceans (investment of \$20 million, 40 jobs), Oceanium (initial investment of \$12 million, and 25 jobs, scaling to 65 jobs by year 7), Ocean Rainforest (investment of \$7 million and 50-100 jobs), Seagrove Kelp Company (investment of \$2.5 million, 20-30 jobs), Trident Seafoods (R&D/equipment investment of \$50,000/4 years), Alaska Ocean Farms LLC (investment of \$475,000, 3 jobs), Peter Pan Seafood Company, EC Philips.

Hatcheries: OceansAlaska (\$10,000 in-kind match), Chugach Regional Resources Commission (CRRC) (\$1.5 million investment; in-kind match \$3.58 million).

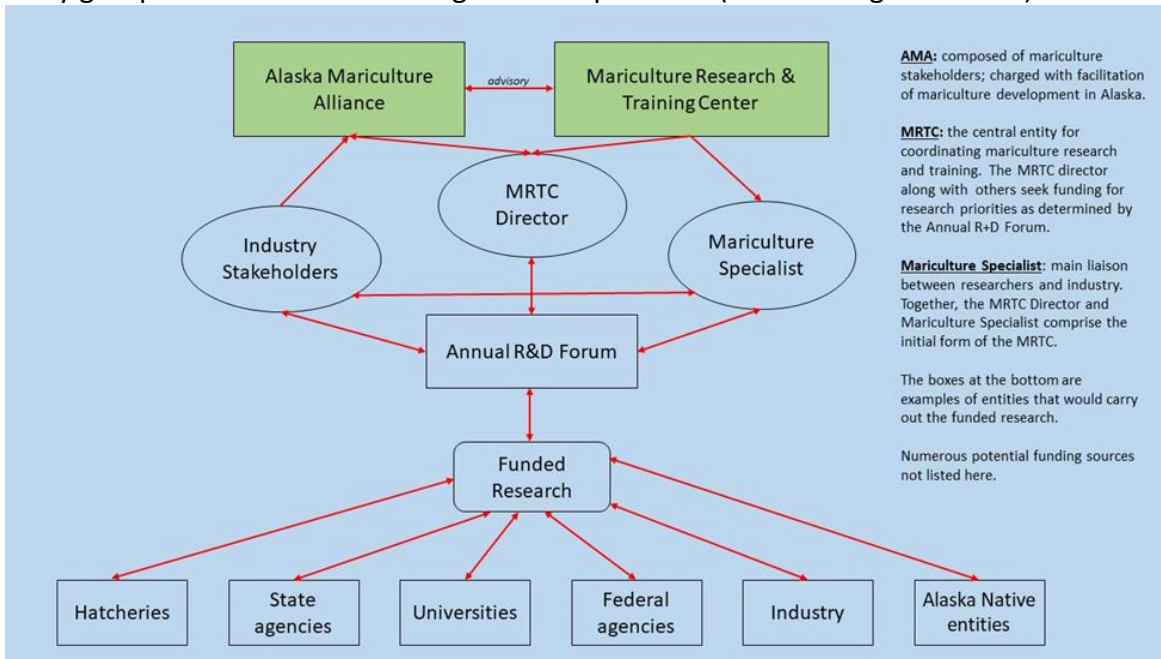
Non-Profits (Economic Development/Research/Environmental): Grantham Foundation (\$1.25 million non-federal cash match), World Wildlife Fund, Alaska Fisheries Development Fund, Alaska Mariculture Alliance, Copper River Prince William Sound Marketing Association (\$20,000 cash match), Alaska Venture Fund (\$50,000 to \$200,000 non-federal funds invested), The Nature Conservancy, Prince William Sound Science Center (\$360,000 in-kind match).

Plan for Sustained Regional Growth Cluster

The successor organizations to the Governor’s Mariculture Task Force – the **Alaska Mariculture Alliance (AMA)** and the **Mariculture Research and Training Center (MRTC)** - will provide the long-term structure necessary to sustain the development efforts of the Alaska Mariculture

Cluster after the project period ends. The AMA provides leadership and longevity and coordination across a broad spectrum of stakeholders. Many of the regional growth cluster entities have already been active or supportive of the development of mariculture through their membership in AMA, created in 2021. The mission of the AMA is to “develop and support a robust and sustainable mariculture industry, producing shellfish and aquatic plants for the long-term benefit of Alaska’s economy, environment and communities”. The membership of the AMA includes 61 full members, 7 ex-officio members from state or federal agencies, and 40 associate members (supporting businesses or nonprofits which are aligned with the purposes of the AMA) ([AMA Bylaws, pgs 1-2](#)). Additionally, the identification of mariculture as a priority in the CEDS documents for the EDDs and the SOA will support sustainability of the Cluster.

The MRTC is the central entity for coordinating mariculture research and training activities. Lack of coordination at this level was identified as a systemic problem and barrier to continued growth in the statewide mariculture CEDS. The structure of the AMA and MRTC are designed to link industry priorities for mariculture development with research and training activities provided across the state in order to accelerate development. The MRTC has an ex-officio (voting) seat on the AMA Executive Committee, and the AMA serves as an industry advisory group to the MRTC for setting research priorities (see the diagram below).



Plan to Engage Community-Based Organizations / Labor Unions

The component projects for the Alaska Mariculture Cluster are non-construction projects. That being said, the Coalition Members will be working with workforce development and labor entities, such as the University of Alaska, Alaska Safety Alliance, Alaska Department of Labor & Workforce Development, regional tribes, Sustainable Southeast Partnership, and others to

ensure pathways to skilled labor jobs are available and filled, as well as putting an emphasis on creation of entrepreneurs (business owner/operators) in order to reap the benefits of higher wages and profits going to Alaskans who live in local communities where mariculture development occurs. Below is an example of one of Southeast Conference's partners in equitable workforce development that implement solutions through collaborations with communities, labor organizations and other NGO's.

The Sustainable Southeast Partnership (SSP) is a diverse group of organizations working together on the challenge of sustainable community development in Southeast Alaska. The SSP is a growing collaboration of organizations whose common goal is to empower Southeast Alaska communities to develop cultural, ecological and economic prosperity, sustainability and resilience. The partnerships include international, regional and community-based organizations, tribal governments, land managers, entrepreneurs, Alaska Native corporations, passionate individuals, and experts in food sovereignty, land management, local business, energy systems, storytelling and more. <http://sustainablesoutheast.net>

Plan for Equitably Shared Benefits

The positive economic benefits of mariculture development will be focused in coastal rural Alaska, in the regions of the four EDDs, where the activities of growing, harvesting and processing shellfish and seaweed occur, and where some of the most historically underserved communities (rural) and underserved populations (Alaska Natives) in the U.S. exist. Alaska Native communities do not want to be “left behind” during the development of mariculture due to a bureaucratic grant deadline (March 15), which seems to counteract the [President's Executive Order on Advancing Racial Equity](#). Alaska Native communities are losing access to commercial fisheries as limited entry permits and quota shares are transferred to other owners or migrate to larger cities. Many Alaska Native villages and other rural communities also lack access to broadband internet service which poses a significant barrier to the speed of development. Mariculture provides an opportunity during new resource development to address these inequities by prioritizing tribal and Alaska Native leadership, ownership and participation in mariculture, as well as providing services such as training, financing, and other business development to support equitable opportunity. The Coalition provides the following plan to support equitably shared benefits.

Equity Engagement Goals: The plan to share benefits of the cluster development equitably across all affected communities will involve three parts. The first part involves setting *Equity Engagement Goals* which will be the stick by which the Cluster measures progress towards the commitment to equitable opportunities. The *Equity Engagement Goals* will be: 1) to provide at least 25% of the project services directly to underserved populations (Alaska Natives), and 2) to provide at least 25% of the project services directly to underserved communities (rural).

Engagement utilizing Governance Body: The second part will be to work with the broad network represented by the Coalition and Partners, which so far includes tribes and Alaska

Native Corporations representing over 40,000 tribal citizens or shareholders, to engage Alaska Natives in mariculture development. This engagement requires time to build relationships and trust between individuals and entities. These communities can feel left out of many economic opportunities, are often skeptical of new opportunities, and have limited capacity to engage. Thus, the process to build trust, relationships, and capacity in these communities is much longer than the timeline for Phase 1 planning. Therefore, the Coalition will utilize a component project dedicated to Governance, Coordination and Outreach, in Phase 2. A Governance Body will be created which includes the nine AMA Executive Committee Members, four representatives from the EDDs, and four specifically Alaska Native seats from the regions. The Governance Body will use a competitive annual RFP process to slow down the development decision-making process in order to allow Alaska Natives entities and underserved communities to discuss and consider how mariculture development fits best with its goals and respond to RFPs when those discussions have happened.

Tracking Metrics: The third part of the plan involves tracking annual equity engagement metrics across all of the Coalition’s activities to monitor if engagement goals are on track. If goals are not being met, the Governance Body will discuss and determine how to adjust both outreach and engagement efforts.

Outcomes

The component projects and complimentary work planned by the Alaska Mariculture Cluster (AMC) is estimated to result in the creation of 318 full-time equivalent (FTE) jobs and \$42 million in private investment leveraged by the final year of the grant period. The 318 direct, indirect, and induced FTE jobs will be created by the activities of grant fund recipients as well as by stimulating the growth of Alaska’s mariculture industry. The impact is expected to increase to 495 FTE jobs by Year 10.

The AMC programs are collectively estimated to move Alaska’s mariculture industry from a status quo growth trajectory (annual economic output of \$4.7 million at year 4 and \$10.8 million in Year 10) to a mid-case growth trajectory (economic output of \$22.6 million at year 4 and \$98.3 million in Year 10), with a potential for even higher growth.

Alaska’s mariculture industry has the potential for rapid growth – with EDA and coalition partner investments – due to rapidly increasing demand for low-carbon seaweed-derived agricultural products as part of a global response to climate change, and demand for improved food production methods which do not use fresh water, land, or fertilizer inputs. Ample capital has been raised by several seaweed processing companies planning engagement in Alaska’s mariculture industry, as shown by the letters of commitment submitted. Alaska’s food-focused current seaweed and oyster industry is also expected to achieve significant incremental growth, following broader interest in sustainability and building on our state’s unparalleled reputation for quality seafood.

	Total Jobs Impact	Economic Output	Private Investment Leveraged
Estimated Annual Economic Impacts of AMC at Year 4	318	\$33,300,000	\$42,000,000
Estimated Annual Economic Impacts of AMC at Year 10	495	\$87,500,000	\$134,000,000
Estimated Annual Economic Impacts of AMC at Year 20	1,665	\$294,300,000	\$268,000,000

Phase 1 Work Completed

The Coalition Members formed committees around each component project. At least weekly component committee meetings were held to flesh out and prioritize objectives, tasks, partners, missing research or data needs, responsible parties, metrics, data collection and management. The Committees then transitioned to writing groups developing narratives and budgets.

Southeast Conference also conducted a competitive RFP process in order to hire a group of contractors and subcontractors to complete research and analysis to inform each committee's discussion. Information provided by contractors is described below:

- Updated data was compiled on Alaska mariculture production volume and value, as well as information on aquatic farms in the permitting pipeline. Data was also compiled on potential demand based on the business models of mariculture processing companies currently active in Alaska as well as those scoping investments in the state.
- Supply and demand projections were developed for seaweed and oyster seed under various industry growth scenarios. Projections were based on recent seed demand, nursery capacity, farming growth potential, and potential for nursery capacity expansion.
- Information requests were fielded from coalition members during development of component projects and tasks. Requests related to a wide variety of topics including seaweed and shellfish processing equipment, trends and opportunities in oyster and seaweed nursery and farming technologies and operations, capital investment needs, costs associated with site assessment and monitoring, and analysis of market research needs, among other requests.
- Projections were updated for potential Alaska mariculture industry size at years 4, 10, and 20 – including scenarios with and without EDA investment. Economic impacts resulting from the completion of the component projects and associated coalition partner investments were also estimated.
- A total of 15 memos available to all coalition members were developed by the contractors. These will be combined into a written report and presentation later in 2022.

List of Changes Since Phase 1

- Meeting our Equity Engagement Goals will require time to build relationships and trust with underserved populations and communities, who with a history of being left out of economic opportunities are often skeptical of new opportunities and/or have limited

capacity to engage. The process to build trust, relationships, and capacity in these communities is much longer than the timeline for Phase 1 planning. Therefore, the Coalition must use strategies to overcome these challenges. The Coalition determined a component project dedicated to Governance, Coordination and Outreach, in Phase will help overcome this challenge.

- Learned due to global trends, seaweed development goals projected in 2017 which we were using in Phase 1 application should be updated and adjusted higher to be commensurate with new information.
- In response to EDA guidance, the Coalition re-organized its component projects into categories and titles more clearly recognizable as traditionally funded activities by EDA, however, maintained the tasks and logic associated with the integrated and interrelated components.
- In response to further analysis of demographics and consultation with Alaska Native entities, the Coalition increased Equity Engagement Goals to 25% and 25%, respectively for underserved populations (Alaska Natives) and underserved communities (rural).

List of new letters of commitment/coalition members added since Phase I application

submission: Denali Commission; Copper River Prince William Sound Marketing Association; Alaska Ocean Farms LLC; Grantham Foundation; Alaska Venture Fund; Macro Oceans; Kodiak Archipelago Leadership Institute; Kelp Blue; Kelptastic; Ocean Rainforest; Sealaska; SpruceRoot; The Nature Conservancy; OneUSDA; Peter Pan Seafood Company; EC Philips; World Wildlife Fund; US Department of Energy ARPA-E.

All investment and matching amounts have been updated, including for both coalition members included in the Phase I application and for new members added. See below for details.

Alaska Native Corporations: Sealaska Corporation (\$100,000 in-kind match), Spruce Root (\$1 million match).

Tribes / Tribal Nonprofits: Central Council of the Tlingit and Haida Indians of Alaska (Tlingit & Haida), Chugach Regional Resources Commission (CRRC) (\$1.5M investment; in-kind match \$3.58 million), Kodiak Archipelago Leadership Institute, Metlakatla Indian Community.

Businesses - Aquatic Farmers, Food Manufacturer / Processor: Kelptastic (\$20,000 in-kind match), Kelp Blue Alaska (140 jobs), Macro Oceans (investment of \$20 million, 40 jobs), Oceanium (initial investment of \$12 million, and 25 jobs, scaling to 65 jobs by year 7), Ocean Rainforest (investment of \$7 million and 50-100 jobs), Seagrove Kelp Company (investment of \$2.5 million, 20-30 jobs), Trident Seafoods (R&D/equipment investment of \$50,000/4 years), Alaska Ocean Farms LLC (investment of \$475,000, 3 jobs), Peter Pan Seafood Company.

Hatcheries: OceansAlaska (\$10,000 in-kind match), Chugach Regional Resources Commission (CRRC) (\$1.5 million investment; in-kind match \$3.58 million).

Government: City of Valdez (\$6 million in-kind match), OneUSDA Southeast Alaska Sustainability Strategy Team, State of Alaska(\$2.497M in-kind match, \$31.6M state appropriation request), US Department of Energy ARPA-E.

Non-Profits (Economic Development/Research/Environmental): Denali Commission (\$1.5 million non-federal cash match), Grantham Foundation (\$1.25 million non-federal cash match), World Wildlife Fund, Alaska Fisheries Development Fund, Alaska Mariculture Alliance, Copper River Prince William Sound Marketing Association (\$20,000 cash match), Alaska Venture Fund (\$50,000 to \$200,000 non-federal funds invested), The Nature Conservancy, Prince William Sound Science Center (\$360,000 in-kind match).

Workforce Development: University of Alaska Anchorage (\$247, 584 cash match), University of Alaska Southeast (\$2.165M investment, \$192,364 in-kind match), University of Alaska Fairbanks.

Optional Template for BBBRC Phase 2 Primary Service Area County List

BBBRC Phase 2 applicants may use this template to list the counties in their primary service areas, which is required as part of both the Overarching Narrative (see p. 21 of the NOFO) and the project narratives of all Component Applications (see p. 23 of the NOFO).

<https://www.census.gov/geographies/reference-files.2019.html>

Overarching Narrative	"A description (~1 page) of the project's location and region, including a definition of its primary service area by counties. Counties should be identified by both name and 5-digit FIPS codes. See https://www.census.gov/geographies/reference-files.2019.html . The description of the region should include identify the communities served and a description of the target participants served and stakeholders engaged. The description also include the identification of assets in the region critical to the success of the regional growth cluster. The location regions should directly correspond to Questions 14 and 16 of Form SF-424 as submitted in each constituent component project. If applicable, also provide information demonstrating that the project is in or directly benefits a coal community. NOFO p. 21.
Component Application Project Narratives	"Section 2a: A description of the component project's location and region. The locations and regions should directly correspond to Questions 14 and 16 of Form SF-424 and align with the information provided in the Overarching Narrative. If the applicant expects impacts beyond the noted region, the applicant should note the region of expected impact. Additionally, applicants must identify their proposed primary service area(s) by county or counties. Counties should be identified by both name and 5-digit FIPS codes. See https://www.census.gov/geographies/reference-files.2019.html p. 23.

FIPS Code	County / County Equivalent Name
02013	Aleutians East Borough
02016	Aleutians West Census Area
02060	Bristol Bay Borough
02070	Dillingham Census Area
02100	Haines Borough
02105	Hoonah-Angoon Census Area
02110	Juneau City and Borough
02122	Kenai Peninsula Borough
02130	Ketchikan Gateway Borough
02150	Kodiak Island Borough
02164	Lake and Peninsula Borough
02195	Petersburg Borough
02198	Prince of Wales-Hyder Census Area
02220	Sitka City and Borough
02230	Skagway Municipality
02275	Wrangell City and Borough
02282	Yakutat City and Borough
02261	Valdez-Cordova Census Area