An aerial topographic map of Bristol Bay, Alaska, showing the coastline, rivers, and surrounding land. The map is overlaid with several semi-transparent inset images: a fishing boat on the left, a pier with many boats in the center, and another fishing boat on the right. The text is centered over the map.

Bristol Bay Careers

**Jobs in the
Fisheries**

**Seafood Processing
Maritime Trades**

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Front Cover: Design by Thomas Woods

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Bristol Bay Native Association

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Aleknagik
Chignik Bay
Chignik Lagoon
Chignik Lake
Clarks Point
Curyung
Egegik
Ekuk
Ekwok
Igiugig
Iliamna
Ivanof Bay
Kanatak
King Salmon
Kokhanok
Koliganek
Levelock
Manokotak
Naknek
New Stuyahok
Newhalen
Nondalton
Pedro Bay
Perryville
Pilot Point
Port Heiden
Portage Creek
South Naknek
Togiak
Twin Hills
Ugashik

Dear Bristol Bay Career Guide User:

This guide was created to help you navigate through career pathways in the fisheries, seafood processing and maritime industry sectors. Use it to discover how building specific education, work experience, and occupational credentials can advance your career toward higher level and higher paying jobs.

The fisheries, seafood processing, and maritime trades have similarities that allow you to move or crosswalk from one sector to the other easily. SAVEC offers a variety of courses to boost your skills and advance your career across the fisheries, seafood processing, or maritime industries. If they don't have the specific training you need, they can help guide you to other education and training providers. They can also guide you to credentialing agencies for specific certifications and licenses. They can lend a helping hand whenever you need help to reach your next career goal in the fisheries, seafood processing and maritime trades.

All the careers described in this guide can be seen in the Bristol Bay region today and are in demand in other regions of the State and Nation. Maybe one is right for you.

Best wishes in achieving the career of your dreams!

Sincerely,

Ralph Andersen
President and Chief Executive Office

CONTENTS

How to Use this Guide.....	1
About Job Clusters in Fisheries, Seafood Processing and Maritime Trades	3
History of the Career Cluster Model	4
Using Your Personal Learning and Career Plan.....	6
Section One: Your Career in Alaska Fisheries	9
Overview of the Alaska Bristol Bay Fisheries Industry.....	9
Career Pathways in the Fisheries Sector for Small to Midsized Gear Vessels	12
Career Pathways in the Fisheries Sector for Fisheries Research and Management	18
Career Pathways for Fisheries Support Services.....	24
Section Two: Your Career in Seafood Processing	31
Overview of the Seafood Processing Industry	31
Career Pathways for Seafood Processing at Sea.....	34
Career Pathways for Shore-Based Seafood Processing	56
Section Three: Your Career in the Maritime Trades	81
Overview of the Maritime Trades Industry.....	81
Career Pathways for Maritime Vessel Occupations.....	84
Career Pathways in Harbor Operations & Vessel Support Services	94
Appendix 1 - Glossary.....	104
Appendix 2 - Online Career Development Resources.....	111
Bibliography	115

Tables

Table 1: Jobs in Fisheries.....	11
Table 2: Jobs in Seafood Processing At Sea Facilities.....	33
Table 3: Jobs in Seafood Processing Shore Based Facilities.....	55
Table 4: Jobs in Maritime	83

Fisheries



Seafood Processing at Sea



Shore-Based Seafood Processing



Maritime



HOW TO USE THIS GUIDE

Fishing, processing the catch, and getting it to markets encompasses hundreds of career opportunities for Alaskans. From working on the deck of a fishing boat to managing the temperatures in a warehouse-sized fish freezer to piloting giant cargo container ships carrying fish to US and Asian markets, the jobs in this industry cluster, range from entry level to master.

In Alaska, thousands of seasonal and full-time self-employed entrepreneurs like small specialty processors and individual fishers as well as wage earners like accountants, dock workers, and managers work in the industry each year. Some of the work is done aboard fishing boats and huge factory vessels at sea. Many jobs are located in shore-based processing plants from Nome to King Salmon and Dutch Harbor to Ketchikan. There are a lot of very well-paying maritime jobs like chief engineer on a cargo ship or cook on a tugboat that cross the Gulf of Alaska or the North Pacific on monthly journeys to Washington state and the Far East.

Whether you are looking for a summer job or a lifetime career in this exciting and varied industry you've come to the right place! This guide provides you with helpful information as you make career choices.

Certain occupations, trades, and crafts classify jobs by skill, education and knowledge. These classifications may be mandated by federal or state registration boards or developed by industry groups in the private sector. Wage earners in those occupations typically start at an apprentice level and progress through the journey level and finally attain master. The origins of this progressive career pathway go all the way back to the European Middle Ages. Back in those days, a person began their working life by becoming an apprentice; usually for many years they studied and worked with a master at the craft. When they had arrived at a level determined by the guild, or group of masters in that industry, they could charge fees for their labor. This was known as the journeyman level of the trade. Following more years of practicing the skills, gaining more knowledge and training in different areas of the occupation, the person would graduate to being a master of the trade. This is the highest level of accomplishment, with top wages, benefits, and recognition in the field.

To make it easier to get your sea legs in the industry, the information in this guide is separated into three sections:

Fisheries
Seafood Processing
Maritime

Then each of the jobs within that section is described in terms of:

- **Job Title:** helps you define the type of job you may be looking for.
- **Standard Occupational Code (SOC) Number:** use this for finding out more information online at the U.S. Department of Labor.
- **Level:** entry, journey, or master level.
- **Annual Salary Range:** gives you the range of salaries for the position.
- **Position Description:** explains what types of duties and skills the job requires.

A table is included with each job description showing the qualifications for each career specialty. The MINIMUM is entry level or what you need to get in the field. Adding any endorsements, training, or other education in the BETTER column increases your chances of getting hired and/or getting paid a higher wage at the journey level. BEST shows more education that ups your chances of hire/increased pay for master level jobs. The REQUIRED column is what you are required to have to be considered for employment. The bottom row shows places to get the endorsements, training certificates, or other educational requirements for the job.

Education			Required
Minimum	Better	Best	
Gets you in the door: GED, High School Diploma	Increases your chances of getting hired/more pay: some college or trades training	This is your best shot: educational degrees and occupational endorsements.	Be sure to get these if you don't already have them: occupational licenses, like driver license, CPR/First Aid, etc.
Program of Study or educational institute: such as AVTEC, SAVEC, UAF Bristol Bay Campus, UA Southeast, or Union or Employer. Or, source of credential, certificate, or license such as the State of Alaska, U.S. Coast Guard, and Transportation Safety Administration (TSA).			

This information is meant as a guide only. The salaries and job descriptions change from year to year and company to company, even by region of the country. Refer to the table of jobs for each of the industry sectors at the beginning of the section for a quick locate to the details of each job title.

ABOUT JOB CLUSTERS IN FISHERIES, SEAFOOD PROCESSING AND MARITIME TRADES

Bristol Bay Fisheries, Seafood Processing and Maritime Trades encompass highly specialized jobs across six of the 16 national career clusters: Agriculture, Food & Natural Resources; Hospitality & Tourism; Information Technology; Manufacturing; Business Management & Administration; and Transportation, Distribution & Logistics. Within these clusters, 17 Career Pathways make up the waypoints for your career choices over 82 job titles that are covered by this guide.

**National Model – Adopted by Alaska
79 Pathways within 16 Career Clusters**

	<ul style="list-style-type: none"> Food Products and Processing Systems Plant Systems Animal Systems Power, Structural & Technical Systems Natural Resources Systems Environmental Service Systems Agriculture Business Systems 		<ul style="list-style-type: none"> Early Childhood Development & Services Counseling & Mental Health Services Family & Community Services Personal Care Services Consumer Services
	<ul style="list-style-type: none"> Design/Pre-Construction Construction Maintenance/Operations 		<ul style="list-style-type: none"> Network Systems Information Support and Services Interactive Media Programming and Software Development
	<ul style="list-style-type: none"> Audio and Video Technology and Film Printing Technology Visual Arts Performing Arts Journalism and Broadcasting Telecommunications 		<ul style="list-style-type: none"> Correction Services Emergency and Fire Management Services Security & Protective Services Law Enforcement Services Legal Services
	<ul style="list-style-type: none"> Administrative Services Business Information Management General Management Human Resources Management Operations Management 		<ul style="list-style-type: none"> Production Manufacturing Production Process Development Maintenance, Installation & Repair Quality Assurance Logistics & Inventory Control Health, Safety, and Environmental Assurance
	<ul style="list-style-type: none"> Administration and Administrative Support Professional Support Services Teaching/Training 		<ul style="list-style-type: none"> Marketing Communications Marketing Management Marketing Research Merchandising Professional Selling
	<ul style="list-style-type: none"> Accounting Banking Services Business Finance Insurance Securities and Investments 		<ul style="list-style-type: none"> Engineering and Technology Science and Math
	<ul style="list-style-type: none"> Governance National Security Foreign Service Planning Revenue and Taxation Regulation Public Management and Administration 		<ul style="list-style-type: none"> Transportation Operations Logistics Planning and Management Services Warehousing and Distribution Center Operations Facility and Mobile Equipment Maintenance Transportation Systems/Infrastructure Planning, Management and Regulation Health, Safety and Environmental Management Sales and Service
	<ul style="list-style-type: none"> Therapeutic Services Diagnostic Services Health Informatics Support Services Biotechnology Research and Development 		
	<ul style="list-style-type: none"> Restaurants and Food/Beverage Services Lodging Travel & Tourism Recreation, Amusements & Attractions 		

www.careertech.org

HISTORY OF THE CAREER CLUSTER MODEL

The U.S. Department of Education’s National 16 Career Cluster Model grew out of business and industry’s need for a workforce with specific training. Responding to this, educators made a determined effort to find out what knowledge and skills would make students job ready. At the highest levels— U.S. Department of Education, the Office of Vocational and Adult Education (OVAE), the National School-to-Work Office (NSTWO) and the National Skill Standards Board (NSSB)—the focus for job-related learning evolved into career clusters. These were further organized into specific career Pathways based on job titles and descriptions.

Using this guide, you can organize and plan your education to maximize your career satisfaction and earnings. Within each of these clusters, the guide identifies pathways or career streams, with specific Programs of Study that define what you need to know and how to get that knowledge to be successful in the career of your choice. This guide breaks that information down into the career specialties or specific job titles within the cluster and pathway.

The six career clusters from the National Career Cluster Model that occur in the Bristol Bay fisheries, seafood processing and maritime industry are:



Not sure what you want to specialize in? No problem! Many jobs ‘cross walk’ your skills and experience across different clusters and pathways. Classifying jobs and skills by cluster is now used by most of Alaska’s secondary schools and within the Bristol Bay School District. Your school counselor, regional training center or university career advisor all uses the same system to help you craft your customized education plan.

While some skills are particular to only one job, for example, handling fishing gear is done by fishermen but engineer skills can be used in the manufacturing, transportation, and business clusters.

In fact, many people have a tool box of skills and experience they use to work different jobs at different times of their lives or even different seasons. Cross walking one's skills among the fisheries, seafood processing and maritime trades ensures a longer term of employment and much more variety of employment.

To see which jobs occur in more than one cluster, icons and color coding are used to show positions from the following industry sectors.



A fish and teal colored type indicates the job title is in the Fisheries sector.



A gear and orange type indicates the job title is in the Seafood Processing and the Manufacturing sectors.



A ship and blue type indicates the job title is in the Transportation and the Maritime sectors.



A monitor and brown type indicates the job title is in the Business Management sector.

USING YOUR PERSONAL LEARNING AND CAREER PLAN

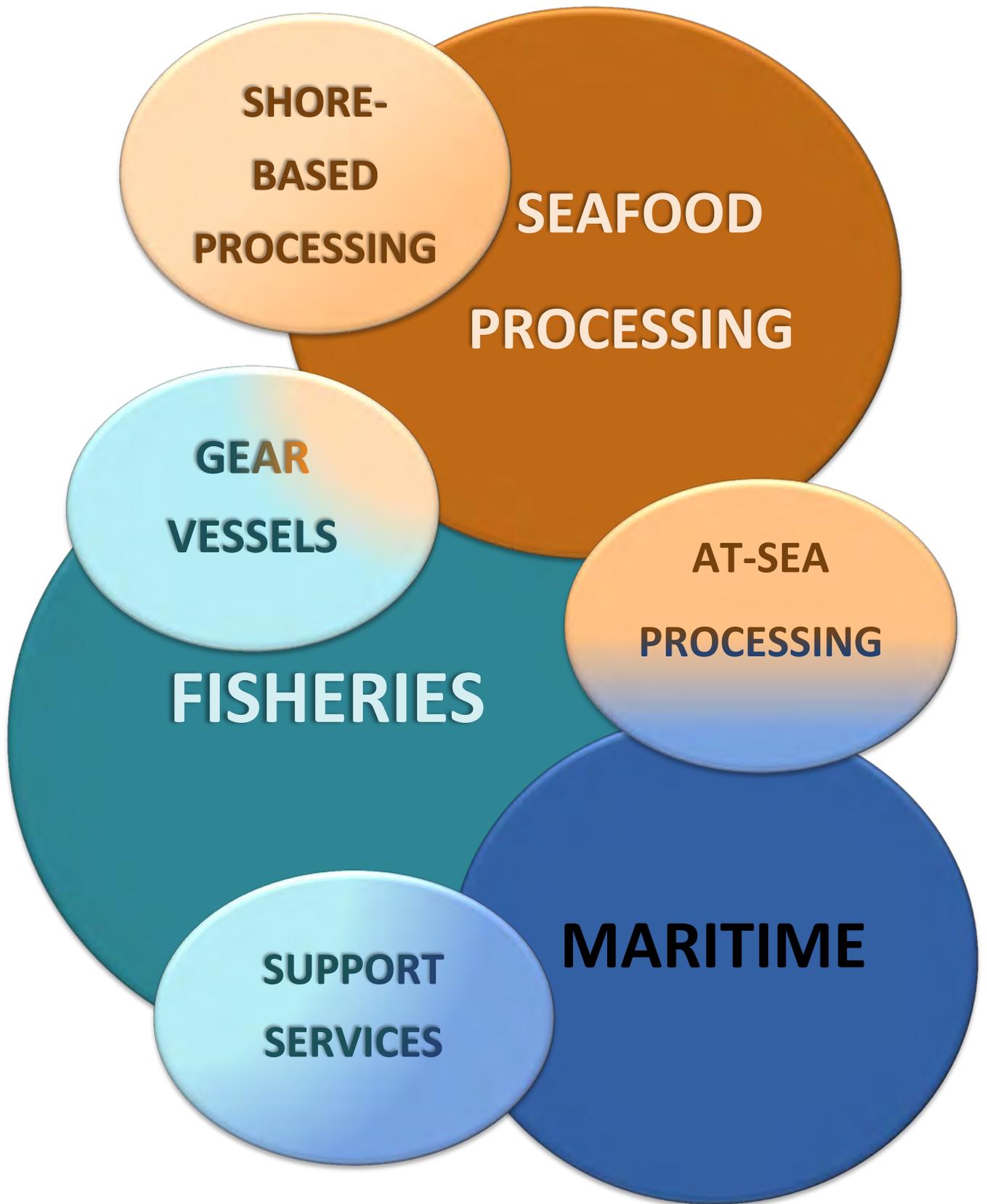
As a strategy for helping people get the right training for the right job, the Alaska Department of Education encourages students and job seekers to create a Personal Learning and Career Plan (PLCP). Students in many school districts are already basing their course of studies on PLCPs.

Not everyone will go right from high school into four straight years of college, and then add on another two to four years for advanced degrees. Many people will alternate periods of work with periods of education. For example, after high school graduation, a person might work for a year to save up money then attend two years of college for an Associate of Arts, or other academic degree. Then they may return to the workforce for another period of time and perhaps go back to a training facility to earn a certificate or a license to enhance their opportunities for advancement.

Some career paths require time and experience in certain types of jobs to qualify you for advancement. The combinations of work and education are varied and personal, tailored to what works for you. This is where the PLCP comes in handy. It can help you create your personal career goals and track the necessary training and skills you will need to be successful.

Your PLCP can lay out a strategy for a career specialty within a pathway. Use it for long term planning to get to your dream job or use it for short term skills and training to achieve a certain level on your career path. For example, if you want to run your own fishing boat someday, create a PLCP for yourself that will keep you on track to attain that goal. It might include what kind of education you need to get an entry level job; what types of additional certificates and licenses you may need to move up to the next level; what kinds of jobs will help you get the skills and experiences necessary to realizing your dream.

If you are still in high school, the PLCP will help you understand what courses of study you can undertake now to prepare you for the job you want. If you are in the middle of your career and decide you want to do something more or different, the PLCP will help you chart a program of study or certification/licensure courses to a more satisfying, and higher paying, career.





SECTION ONE: YOUR CAREER IN ALASKA FISHERIES



OVERVIEW OF THE ALASKA BRISTOL BAY FISHERIES INDUSTRY

Nearly 50,000 people work in the Bristol Bay region during the salmon fishing season. (ISER 2013) Fishing and processing generate about 12,000 jobs directly and another 36,000 jobs are created by support industries like marine and airline transportation operations, financial services, local, state, and federal government natural resource development workers, tourism and hospitality workers, private sector labor.

During the few months of the fishing season the population of Bristol Bay swells by a magnitude of 7. If the Bristol Bay was a town it would have almost as many people as the towns of Fairbanks and Juneau combined at about 60,000. (US Census 2010)

But in terms of economics, no place beats Bristol Bay, generating an economy estimated at more than 1.5 billion dollars. If BB was a country, that would make its economy about the size of the island country of Jamaica.

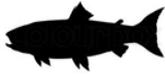
Based on the Alaska Department of Fish & Game 2013 sockeye salmon run forecast for Bristol Bay of about 17.5 million, one seasonal job was created for every 350 salmon.

More fishery value crosses the docks at the Port of Bristol Bay than at Honolulu, Hawaii. The exporting of hundreds of thousands of pounds of canned, headed & gutted round, roe, and filleted salmon and herring via barges and cargo containerships makes the Bristol Bay Borough Port the #4 port in the entire United States.

Within this section of the career guide, there are 15 job titles ranging from entry level to experienced professional master levels contained within the job clusters of Agriculture, Food and Natural Resources, Hospitality, and Transportation with a concentration in the Natural Resources Management Fishing and Transportation Operations pathways. Much of the vocational training and educational coursework required for these jobs is available right here in the Bristol Bay region through the University of Alaska Bristol Bay Campus and the Southwest Alaska Vocational & Education Center.



TABLE 1: Jobs in Fisheries



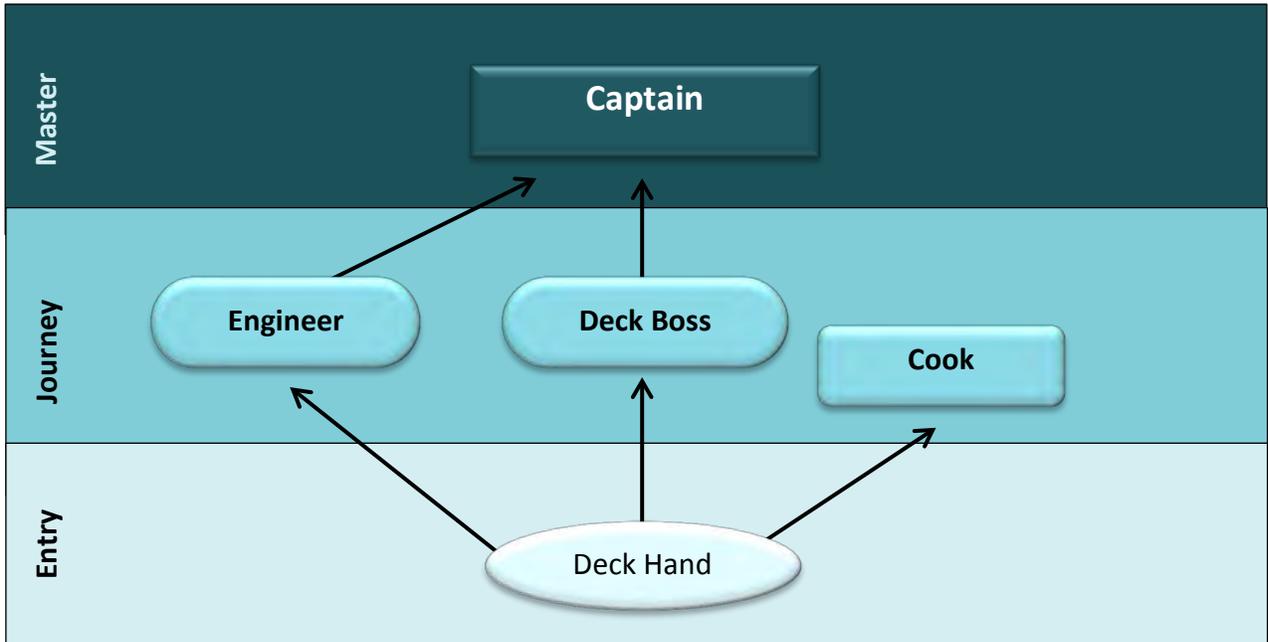
FISHERIES

The harvesting of fish, shellfish and other seafood resources.

Cluster	SOC*	Skills Cross	Page #
Agriculture, Food, Natural Resources		Walk	
Pathway	Natural Resource Systems		
Career Specialty			
Fishing Vessel Operator	535021		
Fishing Vessel Crew (Commercial)	453011		
Mate	535021		
Chief Engineer	535011		
Cook	453011		7
Deck Boss	453011		
Deck Hand - Engineer	453011		
Deck Hand - Green	453011		6
Fisheries Observer	191020		
Fisheries Biotechnician	194021		
Fisheries Technician	194021		
Fisheries Biologist Fin Fish	191023		
Fisheries Biologist Shellfish	191023		
Fish & Game Officer	333031		

*SOC=Standard Occupational Code developed by the US Dept of Labor.

CAREER PATHWAYS IN THE FISHERIES SECTOR FOR SMALL TO MIDSIZED GEAR VESSELS



Small to Midsized Gear Vessel Career Pathways align with these job clusters:



Fisheries Job Descriptions

Deckhand, Greenhorn (Fishing Vessel Crew Member) (SOC 453011)



Job Type: Entry Level

Annual Salary Range: \$ 0 – \$27,000

Position Description: This is the least experienced and most on-the-job training deckhand position. Performs any combination of following duties aboard fishing vessel: Stands lookout, steering and engine-room watches. Attaches nets, slings, hooks, and other lifting devices to cables, booms, and hoists. Loads equipment and supplies aboard vessel by hand or using hoisting equipment. Signal other workers to move, hoist, and position loads. Operates skiffs to transport fishers and to tow and position nets. Attaches accessories, such as floats, weights, and markers to nets and lines. Pulls and guides nets and lines onto vessel. Removes fish from nets and hooks. Sorts and cleans marine life and properly disposes of by-catch. Places catch in containers and stow in hold and covers with salt and ice. Washes deck, conveyors, knives and other equipment, using brush, detergent, and water. Secures and removes vessel's docking lines to and from docks and other vessels.



Photo courtesy of Dillon Bennett

Education			Required
Minimum	Better	Best	
GED* or High School Diploma	CPR/First Aid**	Small Engine Repair** Forklift Driver** Crane Operator**	Alaska Crewmember Fishing License± Driver License‡
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ±ADF&G; ‡Alaska Division Of Motor Vehicles, SAVEC Online Course			

Cook/Deckhand (Fishing Vessel Crew Member) (SOC 453011)



Job Type: Entry Level

Annual Salary Range: \$0 – \$20,000

Position Description: Cook on a fishing vessel in addition to being a deckhand on it. Prepares meals for crew and officers on board fishing vessel or in shore fishery establishment. May assist in actual fishing. May purchase food supplies. If also performs deckhand duties, they include: Performs any combination of following duties aboard fishing vessel: Stands lookout, steering, and engine-room watches. Attaches nets, slings, hooks, and other lifting devices to cables, booms, and hoists. Loads equipment and supplies aboard vessel by hand or using hoisting equipment. Signal other workers to move, hoist, and position loads. Rows boats and dinghies and operates skiffs to transport fishers, divers, and sponge hookers and to tow and position nets. Attaches accessories, such as floats, weights, and markers to nets and lines. Pulls and guides nets and lines onto vessel. Removes fish from nets and hooks. Sorts and



cleans marine life and returns undesirable and illegal catch to sea. Places catch in containers and stow in hold and covers with salt and ice. Washes deck, conveyors, knives and other equipment, using brush, detergent, and water. Lubricates, adjusts, and makes minor repairs to engines and equipment. Secures and removes vessel's docking lines to and from docks and other vessels.

Education			Required
Minimum	Better	Best	Alaska Crewmember Fishing License± Driver License‡
GED* or High School Diploma	CPR/First Aid≠ Food Handler Certificate**	Food Worker Training***	
*UAF-BBC; ≠UAF-BBC, SAVEC, AVTEC; **State of Alaska; ***AVTEC; ±ADF&G; ‡Alaska Division Of Motor Vehicles, SAVEC Online Course			

Deck Boss (Fishing Vessel Crew Member) (SOC 453011)



Job Type: Journey Level

Annual Salary Range: \$-0 – \$30,000

Position Description: Acts as the lead deckhand on the fishing vessel, designated by the Captain. Performs any combination of following duties aboard fishing vessel. Stands lookout, steering, and engine-room watches. Attaches nets, slings, hooks, and other lifting devices to cables, booms, and hoists. Loads equipment and supplies aboard vessel by hand or using hoisting equipment. Signal other workers to move, hoist, and position loads. Rows boats and dinghies and operates skiffs to transport fishers, divers, and sponge hookers and to tow and position nets. Attaches accessories, such as floats, weights, and markers to nets and lines. Pulls and guides nets and lines onto vessel. Removes fish from nets and hooks. Sorts and cleans marine life and returns undesirable and illegal catch to sea. Places catch in containers and stow in hold and covers with salt and ice. Washes deck, conveyors, knives and other equipment, using brush, detergent, and water. Lubricates, adjusts, and makes minor repairs to engines and equipment. Secures and removes vessel's docking lines to and from docks and other vessels.

Education			Required
Minimum	Better	Best	Alaska Crewmember Fishing License± Driver License‡
GED*, High School Diploma	CPR/First Aid**	USCG Drill Instructor*** Seafood Handling≠	
*UAF-BBC; **UAF-BBC,SAVEC, AVTEC; ***USCG; ≠SAVEC, AVTEC; ±ADF&G; ‡Alaska Division Of Motor Vehicles, SAVEC Online Course			

The benchmark, the Common Career Technical Core (CCTC), for what students should know and be able to do after completing a program of study in seafood processing:

- 1. Demonstrate maintenance skills and proficient operation of equipment to maximize manufacturing performance.*
- 2. Demonstrate the safe use of manufacturing equipment to ensure a safe and healthy environment.*
- 3. Diagnose equipment problems and effectively repair manufacturing equipment.*
- 4. Investigate and employ techniques to maximize manufacturing equipment performance.*
- 5. Implement a preventative maintenance schedule to maintain manufacturing equipment, tools and workstations.*
- 6. Implement an effective, predictive and preventive manufacturing equipment maintenance program.*

Engineer (Fishing Vessel Crew Member) (SOC 453011)



Job Type: Journey Level

Annual Salary Range: \$-0 – \$40,000

Position Description: Acts as the engineer for the fishing vessel in addition to performing deckhand duties. Repairs and maintains deck machinery, such as cargo winches and anchor windlasses: Operates machinery to determine causes of malfunctioning. Dismantles, repairs, or replaces defective parts, and reassembles machinery, using machinist's hand tools, chain hoists, and steel rollers. May maintain ship's plumbing system. May change fuses and lights and overhaul electric motors. U.S. Coast Guard must endorse rating. Usually a mechanically inclined deckhand with ability to work on hydraulic, electrical, refrigeration, and diesel engine systems. Additionally, troubleshoot, make temporary repairs Lubricates, adjusts, and makes minor repairs to engines and equipment.



Operates machinery to determine causes of malfunctioning. Dismantles, repairs, or replaces defective parts, and reassembles machinery, using machinist's hand tools, chain hoists, and steel rollers. May maintain ship's plumbing system. May change fuses and lights and overhaul electric motors. U.S. Coast Guard must endorse rating. Usually a mechanically inclined deckhand with ability to work on hydraulic, electrical, refrigeration, and diesel engine systems. Additionally, troubleshoot, make temporary repairs Lubricates, adjusts, and makes minor repairs to engines and equipment.

Education			Required
Minimum	Better	Best	
GED* or High School Diploma	CPR/First Aid**	Basic Carpentry*** Welding** Seafood Handling***	Alaska Crewmember Fishing License± Driver License‡
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***SAVEC, AVTEC,UAF-BBC; ±ADF&G; ‡Alaska Division Of Motor Vehicles, SAVEC Online Course			

Local career-ready individuals in the Bristol Bay fisheries readily access and use the knowledge and skills they acquired through education and experience to be more productive. They make connections between abstract concepts with real-world applications and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation whether onboard or ashore while pursuing their careers.

Captain (Fishing Vessel Operator) (SOC 453011)



Job Type: Master Level

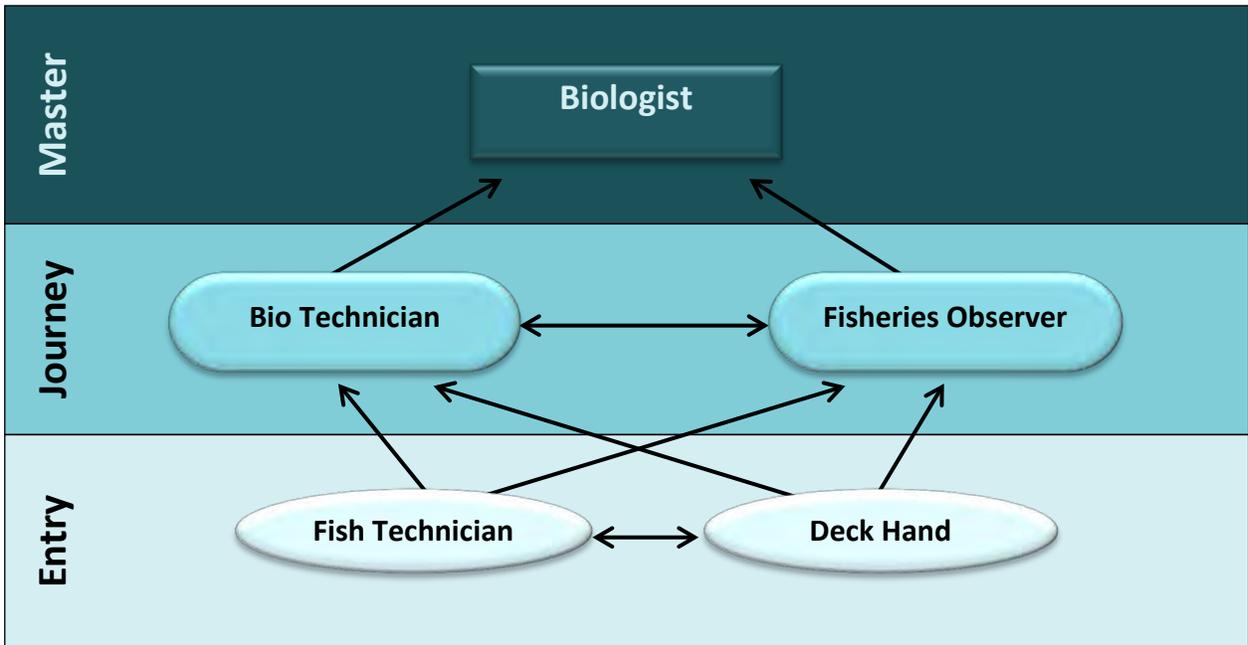
Annual Salary Range: \$-0 – \$100,000

Position Description: Operates vessel and manages crew and may be the owner of the vessel: Interviews, hires, and gives instructions to crew, and assigns watches and quarters. Plots courses on navigation charts and computes positions, using standard navigation aids, such as compass, sextant, clock, radio fix, and navigation tables. Steers vessel and operates electronic equipment, such as radio, sonic depth finder, and radar. Directs fishing operations, using knowledge of fishing grounds and workload capacities of vessel and crew. Records daily activities in ship's log. May purchase supplies and equipment for boat, such as food, fuel, webbing, rope, and cable. May tow and maneuver fish barges at cannery wharf. May contact buyers and make arrangements for sale of catch. May buy fish for resale and be designated Buy-Boat Operator (fishing), or haul fish from other fishing vessels to cannery and be designated Captain, Cannery Tender (fishing).



Education			Required
Minimum	Better	Best	
GED*, High School Diploma	CPR/First Aid** Small Diesel Engine Repair***	Basic Carpentry*** Welding*** Seafood Handling***	Alaska Limited Entry Permit or Crewmember Fishing License± Driver License‡ USCG Uninspected Fishing Vessel License (3000hp and 1000 ton)≠
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***SAVEC, AVTEC, UAF-BBC; ±ADF&G; ‡Alaska Division Of Motor Vehicles, SAVEC Online Course; ≠USCG			

CAREER PATHWAYS IN THE FISHERIES SECTOR FOR FISHERIES RESEARCH AND MANAGEMENT



Fisheries Research and Management Career Pathways align with these clusters:



Fisheries Research and Management Job Descriptions

Technician (SOC 194021)

Job Type: Entry Level

Annual Salary Range: \$15-19 / hr.



Position Description: Living in remote field camps or on research vessels, technicians count and sample fish, do light equipment maintenance, download and maintain remote radio telemetry stations; conduct research projects as directed and log data, Technicians are expected to perform general camp duties on a daily basis including: dishes, cooking, cleaning, maintenance, etc. Ability to operate an outboard motor on a small skiff. Technicians are expected to remain in camp or onboard for the duration of the field season.



Photo courtesy of Alaska Dept. of Fish & Game

Education			Required
Minimum	Better	Best	
GED* or High School Diploma	CPR/First Aid**	Firearm Safety***	First Aid*** Bear & Firearm Safety***
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***ADF&G			

Fisheries Bio Technician (SOC 194021)

Job Type: Journey Level

Annual Salary Range: \$35,000 - \$40,000



Position Description: Assist biological and medical scientists in laboratories ashore or at-sea or in the field. Set up, operate, and maintain laboratory instruments and equipment, monitor experiments, make observations, and calculate and record results. May analyze organic substances, such as blood, scales, shells, feed, and drugs.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma AA Degree*	CPR/First Aid**	Firearm Safety***	First Aid** Bear & Firearm Safety***
*UAF-BBC; **UAF-BBC; SAVEC, AVTEC; ***ADF&G			



Photo courtesy of Alaska Dept. Of Fish & Game

Fisheries Observer (SOC 191020)

Job Type: Journey Level

Annual Salary Range: \$33,000 - \$47,000



Position Description: Fisheries observers are biologists who work independently to collect biological information aboard commercial fishing vessels and at shore side processing plants in Alaskan waters. Observers record information on fishing effort, location, and estimate total catch. Observer duties include: sample to determine the species composition of catches; collect critical biological information such as size frequencies and sex ratios; collect biological samples; monitor level of compliance with fishing regulations; record incidental takes and interactions of marine mammals and seabirds with fishing gear and vessels; keep a detailed logbook of sampling activities; complete a post-cruise debriefing.

Education			Required
Minimum	Better	Best	
AA Biology*	BS Biology**	MA Biology**	Academic Degree
*UAF-BBC; **UAF-SE			

Career-ready individuals in the fisheries understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others in the industry. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences to the environment and their community of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.

Biologist, Finfish and Shellfish (SOC 191023)



Job Type: Journey-Master Level

Annual Salary Range: \$55,000 - \$58,000

Position Description: Study fin and shellfish and mollusks, in their natural habitats, assessing effects of environment and industry on animals, interpreting findings and recommending alternative operating conditions for industry. Biologists Study characteristics of animals such as origin, interrelationships, classification, life histories and diseases, development, genetics, and distribution; analyze characteristics of fish to identify and classify them; prepare



Photo courtesy of Alaska Dept. of Fish & Game

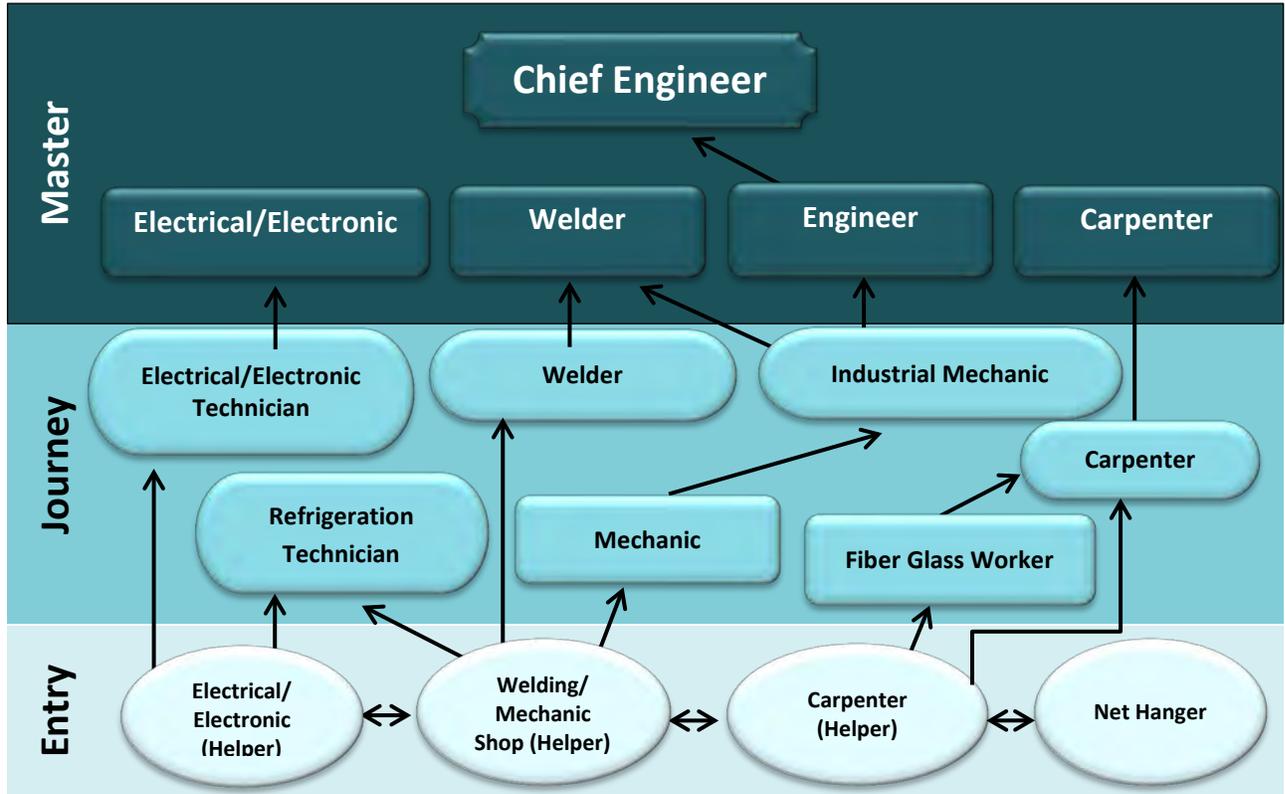
collections of preserved specimens or microscopic slides for species identification and study of development or disease; inventory or estimate populations; organize and conduct experimental studies; disseminate information by writing reports and scientific papers or journal articles, and by making presentations and giving talks for schools, clubs, interest groups and park interpretive programs.

Education			Required
Minimum	Better	Best	Academic Degree
AA Biology*	BS Biology**	MA Biology**	
*UAF-BBC; **UAF-SE			

The Bristol Bay salmon fishery is the world’s most valuable wild salmon with over US \$1 billion in value contributing to over 10,000 direct jobs. Salmon have fed the inhabitants of Alaska for thousands of years. In the 1870s the return of the salmon spawned the processing industry spreading economic benefits across multiple industries and states. (ISER 2013)



CAREER PATHWAYS FOR FISHERIES SUPPORT SERVICES



Fisheries Support Services aligns with these career clusters:



Fisheries Support Services Job Descriptions

Net Hanger (SOC 453011)

Job Type: Entry-Journey Level

Annual Salary Range: \$30,000 - \$35,000

Position Description: Fabricate, repair and maintain fishing gear types using nets, line, and webbing forms. Ability to tie a variety of knots, and splice twisted and braided line. Ability to calculate hanging size and cork placement. Ability to mend and patch webbing.



Education			Required
Minimum	Better	Best	
GED*, High School Diploma	Net Construction & Repair Certificate*	Trade Apprenticeship**	
*UAF-BBC; **Employer			

Bristol Bay career-ready individuals understand the relationship between personal health, workplace performance and personal well-being. They act on that understanding to regularly practice healthy diet, exercise and mental health activities. Career ready individuals also take regular action to contribute to their personal financial well-being, understanding that personal financial security provides the peace of mind required to contribute more fully to their own career success as well as benefit the community.

Carpenter (SOC 472031)



Job Type: Any Level

Annual Salary Range: \$40,000 – \$50,000

Position Description: Construct, erect, install, or repair vessel structures and fixtures made of wood; building frameworks, including partitions, joists, studding, hull and decks; and wood stairways, window and door frames.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma	Basic Carpentry**	Trade Apprenticeship***	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***Union or Employer			

Fiber Glass Worker (SOC 516091)



Job Type: Any Level

Annual Salary Range: \$25,000 - \$32,000

Positions Description: Set up, operate, or tend machines that extrude and form continuous filaments from synthetic materials such as fiberglass; apply, restore, and build vessel hulls and other structures using synthetic materials and a variety of mechanical tools.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma	Basic Carpentry** Fiber Glassing**	Trade Apprenticeship±	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ±Union or Employer			

Refrigeration Technician (SOC 499021)



Job Type: Any Level

Annual Salary Range: \$45,000 – \$55,000

Position Description: Install or repair heating, central air conditioning, or refrigeration systems, including oil burners, hot-air furnaces, and heating stoves, tank cooling equipment and freezers.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma	Basic Carpentry** Welding**	Trade Apprenticeship±	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ±Union or Employer			

Industrial Mechanic (SOC 499041)



Job Type: Master Level

Annual Salary Range: \$44,000 - \$46,000

Position Description: Repair, install, adjust, or maintain marine industrial production and processing machinery and pipeline distribution systems including hydraulic systems, cranes and hoists.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma	Basic Mechanics**	Trade Apprenticeship***	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***Union or Employer			

Welder (SOC 514121)



Job Type: Any Level

Annual Salary Range: \$30,000 – \$35,000

Position Description: Use hand-welding, flame-cutting, hand soldering, or brazing equipment to weld or join metal components or to fill holes, indentations, or seams of marine fabricated metal products; repair hulls, decks, hatches, tanks, holds and other steel or aluminum structures on vessels.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma	Basic Welding**	Trade Apprenticeship*** HVAC Heating, Ventilation, Cooling Technician Certificate±	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***Union or Employer; ±UAF-BBC, SAVEC, AVTEC, Charter College, Ashworth College Online			

Electrical/Electronic Technician (SOC 492095)



Job Type: Journey-Master Level

Annual Salary Range: \$54,000 – \$60,000

Position Description: Test, maintain, and repair electrical systems and electronic relay and control systems; inspect and test equipment and circuits to identify malfunctions or defects, using wiring diagrams and testing devices such as ohmmeters, voltmeters, or ammeters; troubleshoot and solve equipment problems and determine optimum equipment functioning.

Education			Required
Minimum	Better	Best	
GED*, HS	Basic Electronics**	Trade Apprenticeship***	
*UAF-BBC; **AVTEC; ***Union or Employer			





SECTION TWO: YOUR CAREER IN SEAFOOD PROCESSING



Photo courtesy of J. Penelope Goforth

OVERVIEW OF THE SEAFOOD PROCESSING INDUSTRY

The seafood processing industry sector is the largest employer in the Bristol Bay Region. During the salmon season, it is the largest employer in the state. This section is divided into **shore-based** and **at-sea** processing. Many of the processing and maintenance jobs are the same but the at-sea processing sector has additional career specialty opportunities unique to Alaska seafood processing.



In this section, 44 career specialties are examined ranging from entry level to experienced professional. These jobs cross six clusters: Hospitality and Tourism, Agriculture and Natural Resources, Manufacturing Business Management, Information Technology, and



Transportation. Eight pathways specific to these clusters are categorized in this section.

The short season for processing salmon and herring begins in early spring and ends just past



mid-summer. Many of the jobs offer an opportunity to work fast and furious for a short period of time and earn a concentrated amount of money. Some of the jobs are year-round in the shore-based plant operations. For the at-sea

processors, other seasons with crab, halibut or pollock extend employment in different waters of the state like the Bering Sea or Southeast Alaska. A short work sprint allows workers to meet other important life needs like subsistence hunting and gathering, attending to family needs like child or elder care, further career training, studying for certifications, or attending college. Many people use the intense seasonal work as a springboard to jobs that keep them employed during other times of the year such as maintenance or office work.



Increasingly, Bristol Bay residents are able to take a deeper advantage of the economic boon through self-employment as independent producers of specialty foods like smoked and salted salmon.

Jobs in the community also stem from the Community Development Quota program which operates its own vessels and offers specialized training for local residents. Others who work for large processing companies may continue their employment in some jobs by going south working in the company facilities in Washington or Oregon or at other plants in Alaska.



Photo courtesy of Thomas Woods

TABLE 2: Jobs in Seafood Processing At Sea Facilities



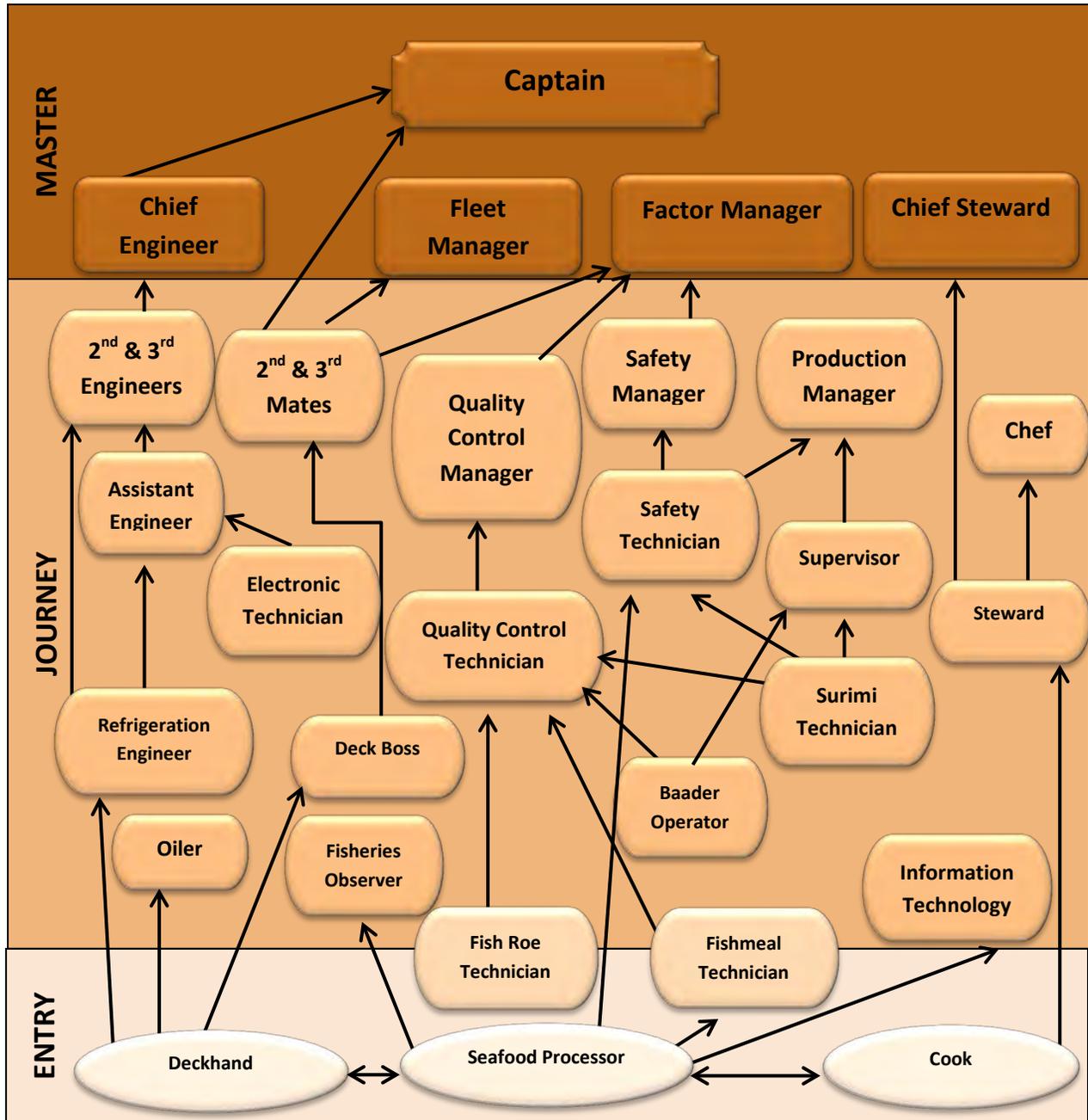
SEAFOOD PROCESSING At Sea Facilities

*The processing, production
and development of seafood
resources.*

			Skills Cross		
Cluster	Hospitality & Tourism	SOC*	Walk		Page #
	Pathway Food/Beverage Services				
Career Specialty	Cook	352012			
	Pathway Lodging				
Career Specialty	Steward	536061			
	Cluster Transportation				
	Pathway Transportation Operations				
Career Specialites	Deckhand (Ordinary Seaman)	453011			
	Deckhand (Able Seaman)	453011			
	Oiler	535011			
	Engineer	172121			
	Mate	535021			
	Master (Captain)	535021			
	Cluster Agriculture, Food, Natural Resources				
	Pathway Food Products & Processing Systems				
Career Specialty	Seafood Processor	513022			
	Fish Roe Technician	513092			
	Surimi Technician	513092			
	Fish Meal Technician	513092			
	Cluster Manufacturing				
	Pathway Production/ Process				
Career Specialty	Baader Technician	173029			
	Production Manager	113051			
	Production Supervisor	511011			
	Cluster Agriculture, Food, Natural Resources				
	Pathway Environmental Service Systems				
Career Specialty	Quality Control Technician	191012			
	Quality Control Manager	113051			
	Safety Manager	172111			

*SOC=Standard Occupational Code developed by the US Dept of Labor.

CAREER PATHWAYS FOR SEAFOOD PROCESSING AT SEA



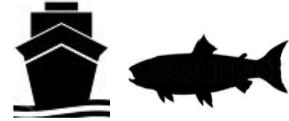
Seafood Processing at Sea Career Pathways aligns with these career clusters:



Vessel Operations Job Descriptions

Vessel Operations Cook (SOC 352012.0)

Job Type: Journey



Annual Salary Range: \$18,000 – \$20,000

Position Description: Cooks are responsible for the providing quality meals to the crew and handling inventory and ordering of supplies for the galley. Cooks prepare, season, and cook a wide range of foods, such as soups, salads, entrees, and desserts. May be responsible for ordering all needed galley supplies on a trip-by-trip basis within a budget limit. Clean, cut, and cook meat, fish, or poultry. Cook foodstuffs according to menus, special dietary or nutritional restrictions, or numbers of portions to be served. Clean and inspect galley equipment, kitchen appliances, and work areas to ensure cleanliness and functional operation. Wash pots, pans, dishes, utensils, and other cooking equipment. Compile and maintain records of food use and expenditures. Take inventory of supplies and equipment. Depending on the size of vessel and the number of crew members, there may be two or more cooks assigned to different watches or with different duties.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma	CPR/First Aid** Cook's Helper/Prep Cook Certificate***	Cook/Culinarian Certificate***	Alaska Food Handler's License*** Driver License‡ Alaska Crewmember License‡
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***State; ‡Alaska Division Of Motor Vehicles, SAVEC Online Course; †ADF&G			

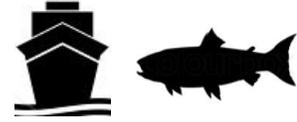
The Bristol Bay salmon harvest is processed by about 11 large companies and 20-23 smaller companies employing more than 5,500 processing workers at the peak of the season in both at-sea and shore-based facilities. (ISER 2013)

Food & Beverage Services Job Descriptions

Steward (SOC 536061)

Job Type: Journey

Annual Salary Range: \$21,000 – \$35,000



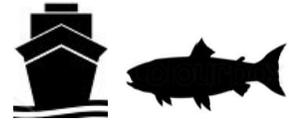
Position Description: The ship steward may be responsible for managing the ship store, laundry facilities, and other duties as assigned. Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people aboard the vessel, providing customer and personal services.

Education			Required
Minimum	Better	Best	Driver License± Alaska Crewmember License‡
GED*, High School Diploma	CPR/First Aid**	USCG Drill Instructor***	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***SAVEC; ±Alaska Division Of Motor Vehicles, SAVEC Online Course; ‡ADF&G			

Career-ready individuals in Bristol Bay understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organizations and the environment. They are aware of and utilize new technologies, understandings, procedures, materials and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and profitability of the organization.

On the Deck

Deck Hand (SOC



Job Type: Journey

Annual Salary Range: \$36,000 - \$40,800

Position Description: Deckhands are responsible for the handling and hauling of gear, operation of deck equipment, and the loading and unloading of inventory. Deckhands are experienced and have increased their skills and value to the operation and are well compensated. A deckhand should have the ability to handle and operate all deck gear, handle lines effectively, and operate cargo handling equipment in a safe manner.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma	CPR/First Aid** USCG MMC***	USCG Ordinary Seaman MMC****	Alaska Crewmember license‡ USCG Merchant Mariner Credential (MMC)***
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***USCG; ‡ADF&G			

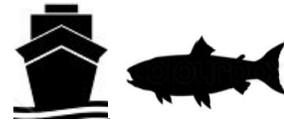


Photo courtesy of Thomas Woods

Deck Boss (SOC 453011)

Job Type: Journey

Annual Salary Range: \$38,000 - \$42,800



Position Description: The deck boss is responsible for supervising all deck procedures. A deck boss should be an experienced deckhand who is capable of working alongside the Captain and Mate to ensure proper procedures at sea and on the dock are followed. A deck boss should have the ability to supervise deck operations and coordinate hauling of gear; maintain gear and deck equipment inventory, communication skills needed to coordinate with officers, loading and unloading procedures. Further, he or she should be certificated to perform USCG-mandated shipboard drills.



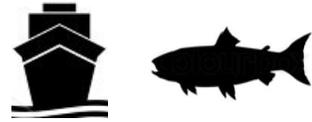
Education			Required
Minimum	Better	Best	
GED*, High School Diploma	CPR/First Aid** USCG Able Body Seaman MMC***	USCG Drill Instructor***	Alaska Crewmember license‡ USCG Merchant Mariner Credential (MMC)***
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***USCG; ‡Alaska Division Of Motor Vehicles, SAVEC Online Course			

Bristol Bay career-ready individuals positively contribute to every team whether formal or informal. They apply an awareness of cultural differences to avoid barriers to productive and positive interaction. They find ways to increase the engagement and contribution of all team members. They plan and facilitate effective team meetings.

Oiler/Engineer (SOC 535011)

Job Type: Journey

Annual Salary Range: \$28,000 - \$37,000



Position Description: Maintain government-issued certifications, as required. Have the ability to lower and man lifeboats when emergencies occur, stand by wheels when ships are on automatic pilot and verify accuracy of courses, using magnetic compasses, steer ships under the direction of commanders or navigating officers or direct helmsmen to steer, following designated courses, handle lines to moor vessels to wharfs, to tie up vessels to other vessels, or to rig towing lines. Operate, maintain, or repair ship equipment, such as winches, cranes, derricks, or weapons system. Lubricate and perform routine checks on machinery. Have knowledge of machines and tools, including their designs, uses, repair, and maintenance; monitor gauges, dials, or other indicators to ensure machinery is working properly.

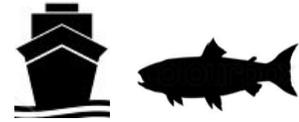
Education			Required
Minimum	Better	Best	
GED*, High School Diploma	Basic Safety/Fire Fighting Training** Standards for Training, Certification, and Watchkeeping (STCW)***	Automotive/Diesel/Welding Technician Certification±	Alaska Crewmember license‡ USCG Merchant Mariner Credential (MMC)≠
*UAF-BBC; **Alaska DPS; ***Southern California and Northwest Merchant Mariner Training Centers; ±AVTEC; ‡ADF&G; ≠USCG			



Chief Engineer (SOC 172121)

Job Type: Master

Annual Salary Range: \$82,000 - \$92,000



Position Description: The Chief Engineer is responsible for maintaining all machinery aboard the ship, and is expected to ensure the safe and effective operation of all equipment. A Chief Engineer should have the ability to handle all refueling operations, make needed repairs in a safe and timely manner, pay attention to detail when logging and recording all repairs and maintenance.

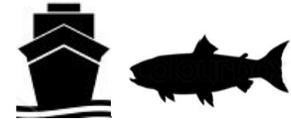
Education			Required
Minimum	Better	Best	
AA Degree* Basic Safety/Fire Fighting Training STCW** USCG Merchant Mariner Credential***	Automotive/Diesel/Welding Certification‡ Medical Care Provider STWC**	USGC 1 st Engineer MMC*** USCG Licenses: 3,000 hp and 1,000 ton uninspected F/V license***	Alaska Crewmember license‡ USCG Merchant Mariner Credential***
*UAF-BBC, UA-SE; **Southern California and Northwest Merchant Mariner Training Centers; ‡SAVEC, AVTEC; †ADF&G			

Career-ready individuals are discerning in accepting and using new information to make decisions, change practices or inform strategies. They use a reliable research process to search for new information. Bristol Bay workers evaluate the validity of sources when considering the use and adoption of external information or practices. They use an informed process to test new ideas, information and practices in their local situation.

Mate (SOC 535021)

Job Type: Master

Annual Salary Range: \$30-37,000



Position Description: Steer vessels, using navigational devices, such as compasses or sextants, or navigational aids, such as lighthouses or buoys. Stand watches on vessels during specified periods while vessels are under way. Determine geographical positions of ships, using GPS, azimuths of celestial bodies, or computers, and use this information to determine the course and speed of a ship. Inspect equipment, such as cargo-handling gear, lifesaving equipment, visual-signaling equipment, or fishing, towing, or dredging gear, to detect problems. Participate in activities related to maintenance of vessel security. Arrange for ships to be stocked, fueled, or repaired. Observe loading or unloading of cargo or equipment to ensure that handling and storage are performed according to specifications. Supervise crew members in the repair or replacement of defective gear or equipment. The mate on a fishing vessel is expected to act as a backup to the Captain, and should be familiar with all aspects of the industry. Mates should have the ability to maintain all records, including offload paperwork and personnel files, and assist with all Captains' responsibilities.



Education			Required
Minimum	Better	Best	
AA Degree* Basic Safety/Fire Fighting Training STCW** USCG Merchant Mariner Credential***	Basic Electronics, Radar Observer Certification**	USCG OUPV License***	Alaska Crewmember license‡ USCG Merchant Mariner Credential***
*UAF-BBC, UA-SE; **Southern California and Northwest Merchant Mariner Training Centers; ***USCG; ‡ADF&G			

Captain (Master) (SOC 535021)

Job Type: Master



Annual Salary Range: \$50,000 - \$63,000

Position Description: Captains are expected to lead by example. An effective Captain should be familiar with all aspects of the fishing vessel’s operation, and should embody the following qualifications: navigate vessel effectively and know all related regulations, maintain safe practices aboard the ship and conduct safety and security drills, supervise proper allocation of crew shares based on performance, maintain discipline, administer required random drug screenings, properly handle paperwork and communication with central office, and be willing



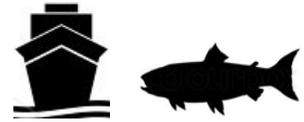
to work with Operations Managers to constantly refine and improve the business plan. The captain operates the vessel, using radios, depth finders, radars, lights, buoys, or lighthouses; computes positions, sets courses, and determines speeds, using charts, area plotting sheets, compasses, sextants, and knowledge of local conditions; inspects the vessel to ensure efficient and safe operation of vessels and equipment and conformance to regulations.

Education			Required
Minimum	Better	Best	
All STCW* Training USCG Merchant Mariner Credential**	USCG OUPV License**	USCG Master 200GT**	USCG MMC** USCG OUPV License** Alaska Vessel Operator License, USCG 1600 ton*** Uninspected Fishing Vessel License*** Alaska Driver License‡
*Southern California and Northwest Merchant Mariner Training Centers; **USCG; ***State; ‡Alaska Division Of Motor Vehicles, SAVEC Online Course			

Seafood Processing Job Descriptions

Seafood Processor (SOC 513022)

Job Type: Entry



Annual Salary Range: \$20,000 - \$35,000

Position Description: Performs any combination of following tasks to can, glaze, package, freeze, preserve, or pack seafood products: Dumps or places food products in hopper, on sorting table, or on conveyor. Sorts or grades products according to size, color, or quality. Feeds products into processing equipment, such as washing, refrigerating, freezing, filleting, trimming, grinding, canning, retort, gutting, or slicing machines. Trims, slices products with knife or paring tool. May pull pin bones out of salmon fillets. Counts, weighs, or tallies processed items according to specifications. Inspects and weighs filled containers to ensure product conforms to quality and weight standards. Places filled containers on trays, racks, or into boxes. Loads, moves, or stacks containers by hand or hand truck.

Education			Required
Minimum	Better	Best	Alaska Food Handler License±
GED*, High School Diploma	CPR/First Aid**	Seafood Processor Orientation & Safety***	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***AVTEC; ±State			



Production Manager (SOC 113051)

Job Type: Master

Annual Salary Range: \$75,000 - \$87,000

Position Description: Industrial production managers oversee the daily operations of manufacturing and related plants. Directs and coordinates activities of food processing plant. Directs, through subordinate supervisory personnel, workers engaged in processing, canning, freezing, storing, and shipping seafood products. Directs and coordinates activities concerned with dismantling, moving, installing, or repairing of machines and equipment. Approves plant payroll and payments for purchased materials or products. Estimates quantities of product for processing required and orders foods, materials, supplies, and equipment needed. Plans and directs production activities and establishes production priorities for products in keeping with effective operations and cost factors. They coordinate, plan, and direct the activities used to create a wide range of goods, such as cars, computer equipment, or paper products.

Education			Required
Minimum	Better	Best	Alaska Driver License***
AA Degree*	BA Degree* Seafood Processor Orientation & Safety**		

*UAF-BBC, UA-SE; **AVTEC; ***Alaska Division Of Motor Vehicles, SAVEC Online Course

Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.

Supervisor (SOC 511011)



Job Type: Journey-Master

Annual Salary Range: \$40-47,000

Position Description: Supervises and coordinates activities of workers engaged in cleaning, eviscerating and preparing fish for packing or canning; Trains workers to clean, eviscerate or prepare fish for packing or canning. Inspects fish at various stages of processing to determine if company standards are being met, such as proper handling techniques to prevent damage to fish such as bruising and gaping. May be responsible for scheduling work hours and tracking time cards.

Education			Required
Minimum	Better	Best	Alaska Driver License***
AA Degree*	BA Degree* Seafood Processor Orientation & Safety**		

*UAF-BBC, UA-SE; **AVTEC; ***Alaska Division Of Motor Vehicles, SAVEC Online Course

Career-ready individuals in Bristol Bay regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. Residents can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which will add greatest value based on their own culture. They seek new methods, practices and ideas from a variety of sources and seek to apply those ideas to their own workplace when appropriate. They take action on their ideas and understand how to bring innovation to an organization which benefits the whole community.

Factory Technician Job Descriptions

Fish Roe Technician (SOC 513092)

Job Type: Entry-Journey

Annual Salary Range: \$24-30,000

Position Description: Performs any combination of following tasks concerned with cannery processing of fish roe (Examples include salmon roe, herring roe, Pollock roe etc.):



Example for herring: Presses headless fish against work surface to ascertain sex of fish by presence or absence of milt. Inserts hand into body cavity of female fish, feels along ventral area of body to locate vent, and cups hand to remove viscera and egg skeins (membrane-enclosed ovaries, tissue, and fish roe). Separates viscera and organs from egg skeins by hand. Discards viscera and organs and places egg skeins in baskets for weighing. Weighs baskets containing egg skeins, using scales, and records totals on tally sheets. Dumps basket of egg skeins

on work surface, and examines egg skeins for imperfections, such as blood saturation, immature eggs, and torn membranes. Separates egg skeins, according to size and species of fish. Places acceptable egg skeins in containers for reweighing. Rinses containers of egg skeins with water, using water hose, and dips containers in mild saline solution to rinse egg skeins prior to brining. Fills brining tanks, dump egg skeins into tanks, remove processed egg skeins, and pack egg skeins for shipment, following prescribed procedures. May slit underside of fish before removing egg skeins, using knife. Example for packing salmon roe: individually pack salmon roe skeins that have been sorted by quality into small plastic buckets, sprinkle each layer with salt, weave the top layer to look nice, weigh the box to appropriate weight.

Education			Required
Minimum	Better	Best	Alaska Food Handler's License±
GED*, High School Diploma	CPR/First Aid**	Seafood Processor Orientation & Safety***	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***AVTEC; ±State			

Baader Technician (SOC 173029)

Job Type: Journey

Annual Salary Range: \$32,000 - \$42,000

Position Description: (May be included in duties as a seafood processor as a Fish Machine Feeder.) There is a machine made by a company called Baader that is commonly used aboard factory processing vessels which requires specialized maintenance. Feeds cleaned fish into machines that bone, skin, or cut and pack fish sections into can: Inspects fish to ensure that color, odor, and texture meet standards. Places fish on feed conveyor of machine. May start machines and pull levers to regulate feed conveyor speed. May be designated according to machine fed as Filling-Machine Feeder; Fish-Boning-Machine Feeder; Fish-Cutting-Machine Operator; Fish-Skinning-Machine Feeder; or according to activity performed as Fish Flipper; Fish Straightener.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma	CPR/First Aid** Industrial Mechanic (Baader) Certificate***	Seafood Processor Orientation & Safety±	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***UA; ±AVTEC			



Surimi Technician (SOC 513092)

Job Type: Journey

Annual Salary Range: \$24,000 - \$30,000

Position Description: Record production and test data for each food product batch, such as the ingredients used, temperature, test results, and time cycle. Follow recipes to produce surimi— fish paste made from Alaska Pollock—of specified flavor, texture, clarity, bouquet, and color. Set up, operate, and tend equipment that cooks, mixes, blends, or processes ingredients according



to formulas or recipes. Clean and sterilize vats and factory processing areas. Turn valve controls to start equipment and to adjust operation to maintain product quality. Press switches and turn knobs to start, adjust, and regulate equipment such as beaters, extruders, discharge pipes, and salt pumps. Observe gauges and thermometers to determine if the mixing chamber temperature is within specified limits, and turn valves to control the temperature.

Education			Required
Minimum	Better	Best	Alaska Food Handler's License±
GED*, High School Diploma	CPR/First Aid**	Seafood Processor Orientation & Safety***	
*UAF-BBC;** UAF-BBC, **SAVEC, AVTEC; ***AVTEC; ±State			

Career-ready individuals in the processing industry communicate thoughts, ideas and action plans with clarity, whether using written, verbal and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time.

Fishmeal Technician (SOC 513092)



Job Type: Entry-Journey

Annual Salary Range: \$24,000 - \$30,000

Position Description: Record production and test data for fish meal batch, according to specific ingredients used, temperature, test results, and time cycle. Set up, operate, and tend equipment that processes fish ingredients according to formulas. Clean and sterilize vats and factory processing areas. Turn valve controls to start equipment and to adjust operation to maintain product quality. Press switches and turn knobs to start, adjust, and regulate equipment such as beaters, extruders, discharge pipes, and salt pumps. Observe gauges and thermometers to determine if the mixing chamber temperature is within specified limits, and turn valves to control the temperature.



Education			Required
Minimum	Better	Best	
GED*, High School Diploma	CPR/First Aid**	Seafood Processor Orientation & Safety***	
*UAF-BBC; ** UAF-BBC, **SAVEC, AVTEC; ***AVTEC			

Commercial fishing is Alaska's largest industry with businesses ranging from a family with a skiff and a few nets or a family operated skinless/boneless processor to behemoth factory trawlers with hundreds of feet of cod end. (McDowell 2012)

Health & Security Job Descriptions

Quality Control Technician (SOC 191012)

Job Type: Journey-Master

Annual Salary Range: \$58,000 - \$62,000



Position Description: Tests and inspects seafood products at various stages of production process and compiles and evaluates statistical data to determine and maintain quality and reliability of products. Confers with management or engineering staff to determine quality and reliability standards. Selects products for tests at specified stages in production process, and tests products for variety of qualities, such as dimensions, performance, and mechanical, electrical, or chemical characteristics. Records test data, applying statistical quality control



procedures. Evaluates data and writes reports to validate or indicate deviations from existing standards. Recommends modifications of existing quality or production standards to achieve optimum quality within limits of equipment capability. For seafood, monitors temperature of product along production process, quality of flesh, quality of canned salmon tin seals, for example. May set up and perform destructive and nondestructive tests on materials, parts, or products to measure performance, life, or material characteristics. May prepare graphs or charts of data or enter data into computer for analysis. May specialize in particular area of quality control engineering, such as design, incoming material, process control, product evaluation, inventory control, product reliability, research and development, and administrative application. For fresh/frozen seafood ensure that employees follow proper sanitation procedures such as keeping gear clean after each use, using clean gloves, wearing clean

raingear, aprons, helmets, hair nets, beard nets, rubber boots that can be cleaned and sanitized. Test frequently to ensure that seafood product is kept at proper temperature during production and during storage to preserve quality. Maintain rigorous quality standards.

Education			Required
Minimum	Better	Best	Alaska Food Handlers License***
AA Degree*	BA Degree*	HACCP**	
*UAF-BBC; **SAVEC, AVTEC; ***State			

Quality Control Manager (SOC 113051.01)

Job Type: Master

Annual Salary Range: \$70,000 - \$88,000



Position Description: Collect and analyze production samples to evaluate quality. Analyze quality control test results and provide feedback and interpretation to production management or staff. Stop production if serious product defects are present. Monitor performance of quality control systems to ensure effectiveness and efficiency. Communicate quality control information to all relevant organizational departments, outside vendors, or contractors. Instruct staff in quality control and analytical procedures. Produce reports regarding nonconformance of products or processes, daily production quality, root cause analyses, or quality trends. Participate in the development of product specifications. Review statistical studies, technological advances, or regulatory standards and trends to stay abreast of issues in the field of quality control. Identify critical points in the manufacturing process and specify sampling procedures to be used at these points. Organizes training activities related to product quality and reliability. May investigate and adjust customer complaints regarding quality.

Education			Required
Minimum	Better	Best	
BA Degree*	MA Degree* HACCP Certification**		HAACP Certification** Alaska Food Handlers License*** Driver License±
*UAF-BBC; **SAVEC, AVTEC; ***State; ±Alaska Division Of Motor Vehicles, SAVEC Online Course			

Recently surveyed seafood processors reported these top labor challenges:

- *Not enough employees to staff production lines.*
- *Lack of skilled trade-workers to maintain equipment/facilities.*
- *Finding and training local plant managers to stay in the region.*
- *Shortage of trained quality control technicians and environmental officers.*

(McDowell 2013)

Safety Manager (SOC 172111)

Job Type: Master

Annual Salary Range: \$45,000 - \$55,000



Position Description: (Duties may be assigned to bridge officers such as first or second mate or engineer.) Plans, implements, coordinates, and assesses ship vessel's accident, fire prevention, and occupational safety and health programs under general direction of Captain. Utilizes knowledge of industrial safety-related engineering discipline and operating regulations. Develops and recommends new procedures and approaches to safety and loss prevention based on reports of incidents, accidents, and other data gathered from company's personnel department. Disseminates information to department heads and others regarding toxic substances, hazards, carcinogens, and other safety information. Assists department heads and administrators in enforcing safety regulations and codes. Measures and evaluates effectiveness of safety program, using established goals. Conducts ship surveys on periodic and regular basis to detect code violations, hazards, and incorrect work practices and procedures. Develops and reviews safety training for employees. Maintains administrative control of records related to safety and health programs. Prepares and disseminates memos and reports. Maintains required records. Assists personnel department in administering worker compensation program.

Education			Required
Minimum	Better	Best	HACCP Certification** Alaska Driver License***
BA Diploma*	MA Degree* HACCP Certification**		

*UAF-BBC; **SAVEC, AVTEC; ***Alaska Division Of Motor Vehicles, SAVEC Online Course

Salmon processing in Bristol Bay increased in value by US \$225 million, for a total first wholesale value after processing of \$390 million. (ISER 2013)

Processing Regulatory Job Description

Fisheries Observer (SOC 191020)

Job Type: Journey Level

Annual Salary Range: \$33,000 - \$47,000

Position Description: Fisheries observers are biologists who work independently to collect biological information aboard commercial fishing vessels and at shore side processing plants in Alaskan waters. Observers record information on fishing effort, location, and estimate total catch. Observer duties include: sample to determine the species composition of catches; collect critical biological information such as size frequencies and sex ratios; collect biological samples; monitor level of compliance with fishing regulations; record incidental takes and interactions of marine mammals and seabirds with fishing gear and vessels; keep a detailed logbook of sampling activities; complete a post-cruise debriefing.



Position Description: Education			Required
Minimum	Better	Best	
BS in Biology*		MA in Biology*	NMFS Observer Training** Federal Communications Commission General Radiotelephone Operator's License***
*UA-SE; **NOAA Fisheries; ***FCC.gov			

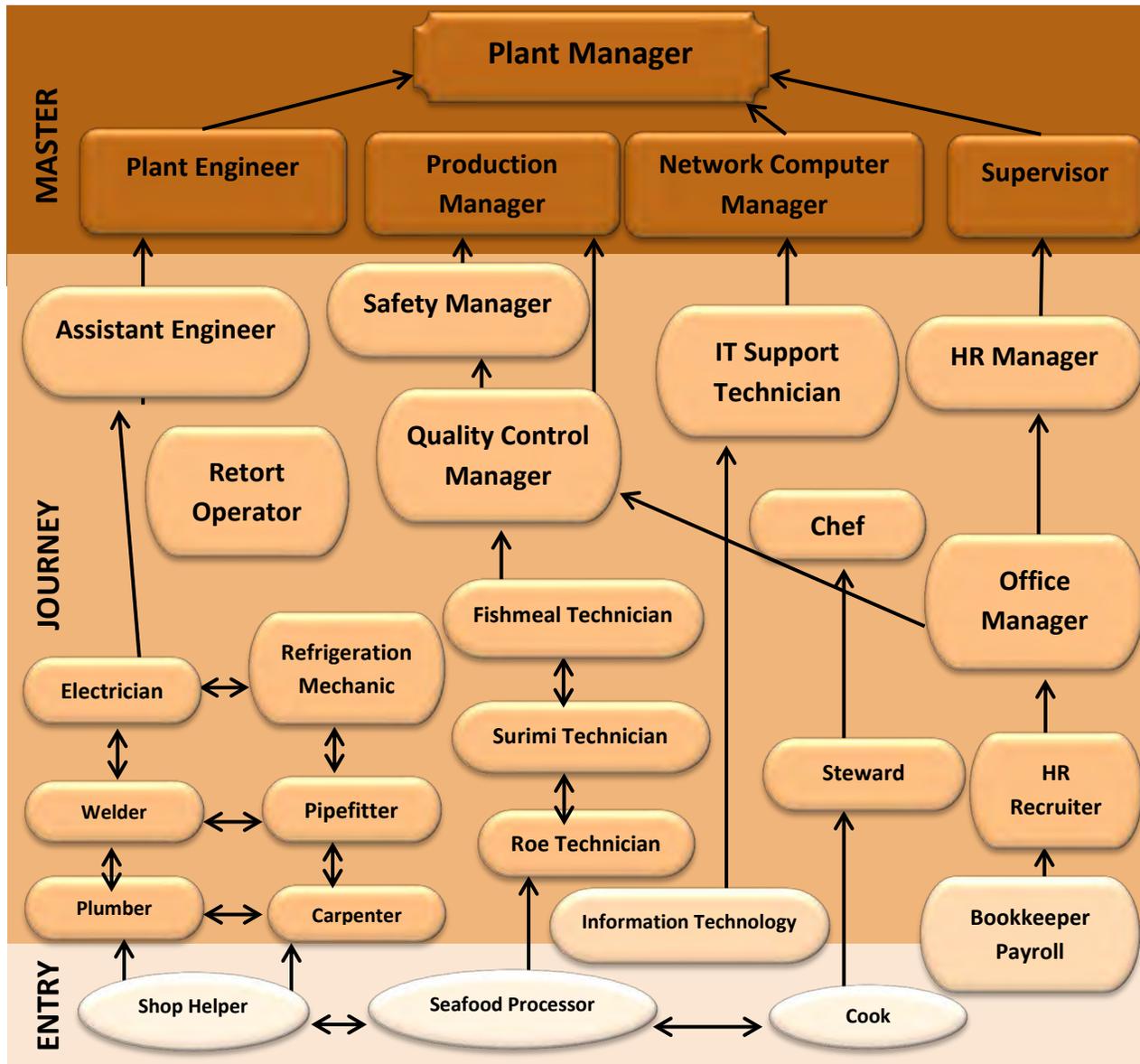


TABLE 3: Jobs in Seafood Processing Shore Based Facilities

		SEAFOOD PROCESSING Shore Based Facilities		<i>The processing, production and development of seafood resources.</i>
Cluster	Pathway	SOC*	Skills Cross	Page #
Hospitality & Tourism				
Food/Beverage Services				
Career Specialty	Cook	352012	 	
Lodging				
Career Specialty	Steward (Bunkhouse Manager)	536061		
Agriculture, Food, Natural Resources				
Food Products & Processing Systems				
Career Specialty	Seafood Processor	513022		
	Fish Roe Technician	513092		
	Fish Meal Technician	513092		
Manufacturing				
Production/ Process				
Career Specialty	Retort Operator	518021		
	Production Manager	113051		
	Production Supervisor	511011		
	Carpenter	472031		
	Electrician	472111		
	Plumber/Pipefitter/Steamfitter	472152		
	Refrigeration Mechanic	499021		
	Welder/Cutter	514121		
	Plant Engineer	518021		
Agriculture, Food, Natural Resources				
Environmental Service Systems				
Career Specialty	Quality Control Technician	191012		
	Quality Control Manager	113051		
	Safety Manager	172111		
Business Management & Administration				
Operations Management				
Career Specialty	Marketing Manager	112021		
	Sales Manager	112022		
	Warehouse Manager	113071		
Business Management & Administration				
Business Information Management				
Career Specialty	Bookkeeper/Payroll	433031		
Business Management & Administration				
Human Resources Management				
Career Specialty	Human Resources Manager	113121		
	Human Resources Recruiter	131071		
Information Technology				
Network Systems				
Career Specialty	Network System Administrator	151142	 	
Business Management & Administration				
Administrative Support				
Career Specialty	Office Manager	113011		
Transportation				
Transportation Operations				
Career Specialty	Fleet Manager	113071	 	

*SOC=Standard Occupational Code developed by the US Dept of Labor.

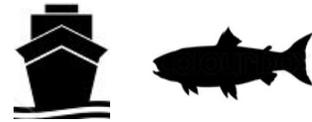
CAREER PATHWAYS FOR SHORE-BASED SEAFOOD PROCESSING



Shore-Based Seafood Processing Career Pathways align with these sectors:



Food and Beverage Services Job Descriptions



Cook (SOC 352012.0)

Job Type: Journey

Annual Salary Range: \$18,000 – \$20,000

Position Description: Cooks are responsible for the providing quality meals to the crew and handling inventory and ordering of supplies for the galley. Cooks prepare, season, and cook a wide range of foods, such as soups, salads, entrees, and desserts. May be responsible for ordering all needed galley supplies on a trip-by-trip basis within a budget limit. Clean, cut, and cook meat, fish, or poultry. Cook foodstuffs according to menus, special dietary or nutritional restrictions, or numbers of portions to be served. Clean and inspect galley equipment, kitchen appliances, and work areas to ensure cleanliness and functional operation. Wash pots, pans, dishes, utensils, and other cooking equipment. Compile and maintain records of food use and expenditures. Take inventory of supplies and equipment. Depending on the size of vessel and the number of crew members, there may be two or more cooks assigned to different watches or with different duties.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma	CPR/First Aid** Cook's Helper/Prep Cook Certificate***	Cook/Culinarian Certificate***	Alaska Food Handler's License‡ Driver License±
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***AVTEC; ‡State; ±Alaska Division Of Motor Vehicles, SAVEC Online Course			



Steward (SOC 536061)

Job Type: Journey

Annual Salary Range: \$21,000 – \$35,000



Position Description: While stewards almost always assist the cook prepare meals and mugups, they also might work in other areas of the plant like the processing, dock, or outbuildings. In this position, stewards are responsible for the general cleanliness of the bunkhouses, offices, the galley, mess hall, and head areas. The steward may be responsible for managing the store, laundry facilities, and other duties as assigned. Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people at the plant, providing customer and personal services. At shore-based plants, stewards also fill in where needed.

Education			Required
Minimum	Better	Best	Driver License***
GED*, High School Diploma	CPR/First Aid**		
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***Alaska Division Of Motor Vehicles, SAVEC Online Course			



Plant Maintenance and Engineering Job Descriptions

Carpenter

Job Type: Any Level

Annual Salary Range: \$40,000 – \$50,000

Position Description: Construct, erect, install, or repair vessel structures and fixtures made of wood; building frameworks, including partitions, joists, studding, hull and decks; and wood stairways, window and door frames. May also install cabinets, siding, drywall, and batt or roll insulation. Cut or saw boards, timbers, or plywood to required size, using handsaw, power saw, or woodworking machine. Mark cutting lines on materials, using pencil and scribe. Anchor and brace forms and other structures in place, using nails, bolts, anchor rods, steel cables, planks, wedges, and timbers. Erect forms, framework, scaffolds, hoists, roof supports, or chutes, using hand tools, plumb rule, and level. Assemble and fasten material together to construct wood or metal framework of structure, using bolts, nails, or screws. Bore boltholes in timber, masonry or concrete walls, using power drill. Maintain job records and schedule work crew.



Education			Required
Minimum	Better	Best	
GED*, High School Diploma	Basic Carpentry**	Trade Apprenticeship***	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***Union or Employer			

Industrial Mechanic (SOC 499041)

Job Type: Master Level

Annual Salary Range: \$44,000 - \$46,000

Position Description: Repair, install, adjust, or maintain marine industrial production and processing machinery and pipeline distribution systems including hydraulic systems, cranes and hoists.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma	Basic Mechanics**	Trade Apprenticeship***	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***Union or Employer			

Refrigeration Technician (SOC 499021)

Job Type: Any Level

Annual Salary Range: \$45,000 – \$55,000

Position Description: Install or repair heating, central air conditioning, or refrigeration systems, including oil burners, hot-air furnaces, and heating stoves, tank cooling equipment and freezers. Observe and test system operation, using gauges and instruments. Adjust valves according to specifications and charge system with proper type of refrigerant by pumping the specified gas or fluid into the system. Test lines, components, and connections for leaks. Dismantle malfunctioning systems and test components, using electrical, mechanical, and pneumatic testing equipment. Adjust or replace worn or defective mechanisms and parts, and reassemble repaired systems. Braze or solder parts to repair defective joints and leaks. Perform mechanical overhauls and refrigerant reclaiming. Keep records of repairs and replacements made and causes of malfunctions. Install expansion and control valves, using acetylene torches and wrenches. Install wiring to connect components to an electric power source.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma	Basic Carpentry** Welding**	Trade Apprenticeship***	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***Union or Employer			

Welder (SOC 514121)

Job Type: Any Level

Annual Salary Range: \$30,000 – \$35,000

Position Description: Use hand-welding, flame-cutting, hand soldering, or brazing equipment to weld or join metal components or to fill holes, indentations, or seams of marine fabricated metal products; repair hulls, decks, hatches, tanks, holds and other steel or aluminum structures on vessels. Weld components in flat, vertical, or overhead positions. Operate safety equipment and use safe work habits. Lay out, position, align, and secure parts and assemblies prior to assembly, using straightedges, combination squares, calipers, and rulers. Examine work pieces for defects and measure work pieces with straightedges or templates to ensure conformance with specifications. Recognize, set up, and operate hand and power tools common to the welding trade, such as shielded metal arc and gas metal arc welding equipment. Weld separately or in combination, using aluminum, stainless steel, cast iron, and other alloys. Clamp, hold, tack-weld, heat-bend, grind or bolt component parts to obtain required configurations and positions for welding. Select and install torches, torch tips, filler rods, and flux, according to welding chart specifications or types and thicknesses of metals. Ignite torches or start power supplies and strike arcs by touching electrodes to metals being welded, completing electrical circuits. Connect and turn regulator valves to activate and adjust gas flow and pressure so that desired flames are obtained.



Education			Required
Minimum	Better	Best	
GED*, High School Diploma	Basic Welding**	Trade Apprenticeship***	
*UAF-BBC;** UAF-BBC, SAVEC, AVTEC; ***Union or Employer			

Electrical/Electronic Technician (SOC 492095)

Job Type: Journey-Master Level

Annual Salary Range: \$54,000 – \$60,000

Position Description: Test, maintain, and repair electrical systems and electronic relay and control systems; Inspect and test equipment and circuits to identify malfunctions or defects, using wiring diagrams and testing devices such as ohmmeters, voltmeters, or ammeters; troubleshoot and solve equipment problems and determine optimum equipment functioning. Maintain current electrician's license or identification card to meet governmental regulations. Connect wires to circuit breakers, transformers, or other components. Repair or replace wiring, equipment, or fixtures, using hand tools or power tools. Assemble, install, test, or maintain electrical or electronic wiring, equipment, appliances, apparatus, or fixtures, using hand tools or power tools. Test electrical systems or continuity of circuits in electrical wiring, equipment, or fixtures, using testing devices, such as ohmmeters, voltmeters, or oscilloscopes, to ensure compatibility and safety of system. Use a variety of tools or equipment, such as power construction equipment, measuring devices, power tools, and testing equipment, such as oscilloscopes, ammeters, or test lamps. Plan layout and installation of electrical



wiring, equipment, or fixtures, based on job specifications and local codes. Inspect electrical systems, equipment, or components to identify hazards, defects, or the need for adjustment or repair, and to ensure compliance with codes. Direct or train workers to install, maintain, or repair electrical wiring, equipment, or fixtures. Diagnose malfunctioning systems, apparatus, or components, using test equipment and hand tools to locate the cause of a breakdown and correct the problem.

Education			Required
Minimum	Better	Best	Electrician License±
GED*, High School Diploma	Basic Electronics**	Trade Apprenticeship***	
*UAF-BBC; **UAF-BBC, AVTEC; ***Union or Employer; ±State			

Plumber, Pipefitter, Steamfitter (SOC 472152)

Job Type: All Levels

Salary Range \$45,000 - \$47,000

Position Description: Sets up and operates factory production machines such as canning machines, fish processing machines. May fabricate metallic and nonmetallic parts, and fits and assembles machined parts into complete units, applying knowledge of machine shop theory and procedures, shop mathematics, machinability of materials, and layout techniques: Studies blueprints, sketches, drawings, manuals, specifications, or sample part to determine dimensions and tolerances of finished work piece, sequence of operations, and setup requirements. Selects, aligns, and secures holding fixtures, cutting tools, attachments, accessories, and materials on machines, such as mills, lathes, jig borers, grinders, and shapers. Calculates and sets controls to regulate machining factors, such as speed, feed, coolant flow, and depth and angle of cut, or enters commands to retrieve, input, or edit computerized machine control media. Starts and observes machine operation to detect malfunctions or out-of-tolerance machining, and adjusts machine controls or control media as required. Sets up and operates machine on trial run to verify accuracy of machine settings or programmed control data. Fits and assembles parts into complete assembly, using jigs, fixtures, surface plate, surface table, hand tools, and power tools. May install machined replacement parts in mechanisms, machines, and equipment, and test operation of unit to ensure functionality and performance. May operate welding equipment to cut or weld parts. May develop specifications from general description and draw sketch of part or product to be fabricated. May confer with engineers, production personnel, programmers, or others to resolve machining or assembly problems.



Education			Required
Minimum	Better	Best	
High School Diploma	Diesel/Automotive Mechanics Certificates*	Trade Apprenticeship**	
*Out-of-State Diesel/Automotive Mechanic Schools; **Union or Employer			

Plant Engineer (SOC 518021)

Job Type: High Level

Annual Salary Range: \$50,000 - \$53,000

Position Description: Operate or tend stationary engines, boilers, and auxiliary equipment such as pumps, compressors, and air-conditioning equipment, to supply and maintain steam or heat for buildings, marine vessels, or pneumatic tools. Observe and interpret readings on gauges, meters, and charts registering various aspects of boiler operation to ensure that boilers are operating properly. Test boiler water quality or arrange for testing and take necessary corrective action, such as adding chemicals to prevent corrosion and harmful deposits. Activate valves to maintain required amounts of water in boilers, to adjust supplies of combustion air,



and to control the flow of fuel into burners. Monitor boiler water, chemical, and fuel levels, and make adjustments to maintain required levels. Fire coal furnaces by hand or with stokers and gas- or oil-fed boilers, using automatic gas feeds or oil pumps. Monitor and inspect equipment, computer terminals, switches, valves, gauges, alarms, safety devices, and meters to detect leaks or malfunctions and to ensure that equipment is operating efficiently and safely. Analyze problems and take appropriate action to ensure continuous and reliable operation of equipment and systems. Maintain daily logs of operation, maintenance, and safety activities, including test results, instrument readings, and details of equipment malfunctions and maintenance work. Adjust controls and/or valves on equipment to provide power, and to regulate and set operations of system or industrial processes.

Education			Required
Minimum	Better	Best	
High School Diploma	BA Degree* HACCP**	HAZWOPER**	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC;			

On the Processing Floor Job Descriptions

Seafood Processor (SOC 513022)

Job Type: Entry

Annual Salary Range: \$20,000 - \$35,000

Position Description: Performs any combination of following tasks to can, glaze, package, freeze, preserve, or pack seafood products: Dumps or places food products in hopper, on sorting table, or on conveyor. Sorts or grades products according to size, color, or quality. Feeds products into processing equipment, such as washing, refrigerating, freezing, filleting, trimming, grinding, canning, retort, gutting, or slicing machines. Trims, slices products with knife or paring tool. May pull pin bones out of salmon fillets. Counts, weighs, or tallies processed items according to specifications. Inspects and weighs filled containers to ensure product conforms to quality and weight standards. Places filled containers on trays, racks, or into boxes. Loads, moves, or stacks containers by hand or hand truck.

Education			Required
Minimum	Better	Best	Alaska Food Handler License±
GED*, High School Diploma	CPR/First Aid**	Seafood Processor Orientation & Safety***	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***AVTEC; ±State			



Production Manager (SOC 113051)

Job Type: Master

Annual Salary Range: \$75,000 - \$87,000

Position Description: Industrial production managers oversee the daily operations of manufacturing and related plants. Directs and coordinates activities of food processing plant. Directs, through subordinate supervisory personnel, workers engaged in processing, canning, freezing, storing, and shipping seafood products. Directs and coordinates activities concerned with dismantling, moving, installing, or repairing of machines and equipment. Approves plant payroll and payments for purchased materials or products. Estimates quantities of product for processing required and orders foods, materials, supplies, and equipment needed. Plans and directs production activities and establishes production priorities for products in keeping with effective operations and cost factors. They coordinate, plan, and direct the activities used to create a wide range of goods, such as cars, computer equipment, or paper products. supervise employees.

Education			Required
Minimum	Better	Best	Alaska Driver License***
AA Degree*	BA Degree* Seafood Processor Orientation & Safety**		

*UAF-BBC; **AVTEC; ***Alaska Division Of Motor Vehicles, SAVEC Online Course

Career-ready individuals are discerning in accepting and using new information to make decisions, change practices or inform strategies. They use a reliable research process to search for new information. Bristol Bay workers evaluate the validity of sources when considering the use and adoption of external information or practices. They use an informed process to test new ideas, information and practices in their local situation.

Supervisor (SOC 511011)

Job Type: Journey-Master

Annual Salary Range: \$40,000 - \$47,000

Position Description: Supervises and coordinates activities of workers engaged in cleaning, eviscerating and preparing fish for packing or canning: Trains workers to clean, eviscerate or prepare fish for packing or canning. Inspects fish at various stages of processing to determine if company standards are being met, such as proper handling techniques to prevent damage to fish such as bruising and gapping. May be responsible for scheduling work hours and tracking time cards.

Education			Required
Minimum	Better	Best	Alaska Driver License***
AA Degree*	BA Degree* Seafood Processor Orientation & Safety**		

*UAF-BBC; **AVTEC; ***Alaska Division Of Motor Vehicles, SAVEC Online Course



Factory Technicians Job Descriptions

Fish Roe Technician (SOC 513092)

Job Type: Entry-Journey

Annual Salary Range: \$24,000 - \$30,000

Position Description: Performs any combination of following tasks concerned with cannery processing of fish roe (Examples include salmon roe, herring roe, Pollock roe etc.): Example for herring: Presses headless fish against work surface to ascertain sex of fish by presence or absence of milt. Inserts hand into body cavity of female fish, feels along ventral area of body to locate vent, and cups hand to remove viscera and egg skeins (membrane-enclosed ovaries, tissue, and fish roe). Separates viscera and organs from egg skeins by hand. Discards viscera and organs and places egg skeins in baskets for weighing. Weighs baskets containing egg skeins,



using scales, and records totals on tally sheets. Dumps basket of egg skeins on work surface, and examines egg skeins for imperfections, such as blood saturation, immature eggs, and torn membranes. Separates egg skeins, according to size and species of fish. Places acceptable egg skeins in containers for reweighing. Rinses containers of egg skeins with water, using water hose, and dips containers in mild saline solution to rinse egg

skeins prior to brining. Fills brining tanks, dump egg skeins into tanks, remove processed egg skeins, and pack egg skeins for shipment, following prescribed procedures. May slit underside of fish before removing egg skeins, using knife. Example for packing salmon roe: individually pack salmon roe skeins that have been sorted by quality into small plastic buckets, sprinkle each layer with salt, weave the top layer to look nice, weigh the box to appropriate weight.

Education			Required
Minimum	Better	Best	Alaska Food Handler's License±
GED*, High School Diploma	CPR/First Aid**	Seafood Processor Orientation & Safety***	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***AVTEC; ±State			

Fishmeal Technician (SOC 513092)

Job Type: Entry-Journey

Annual Salary Range: \$24,000 - \$30,000

Position Description: Record production and test data for fish meal batch, according to specific ingredients used, temperature, test results, and time cycle. Set up, operate, and tend equipment that processes fish ingredients according to formulas. Clean and sterilize vats and factory processing areas. Turn valve controls to start equipment and to adjust operation to maintain product quality. Press switches and turn knobs to start, adjust, and regulate equipment such as beaters, extruders, discharge pipes, and salt pumps. Observe gauges and thermometers to determine if the mixing chamber temperature is within specified limits, and turn valves to control the temperature.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma	CPR/First Aid**	Seafood Processor Orientation & Safety***	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***AVTEC			



Health & Safety Job Descriptions

Quality Control Technician (SOC 191012)

Job Type: Journey-Master

Annual Salary Range: \$58,000 - \$62,000

Position Description: Tests and inspects seafood products at various stages of production process and compiles and evaluates statistical data to determine and maintain quality and reliability of products. Confers with management or engineering staff to determine quality and reliability standards. Selects products for tests at specified stages in production process, and



tests products for variety of qualities, such as dimensions, performance, and mechanical, electrical, or chemical characteristics. Records test data, applying statistical quality control procedures. Evaluates data and writes reports to validate or indicate deviations from existing standards. Recommends modifications of existing quality or production standards to achieve optimum quality within limits of equipment capability. For seafood, monitors temperature of product along production process, quality of flesh, quality of canned

salmon tin seals, for example. May set up and perform destructive and nondestructive tests on materials, parts, or products to measure performance, life, or material characteristics. May prepare graphs or charts of data or enter data into computer for analysis. May specialize in particular area of quality control engineering, such as design, incoming material, process control, product evaluation, inventory control, product reliability, research and development, and administrative application. For fresh/frozen seafood ensure that employees follow proper sanitation procedures such as keeping gear clean after each use, using clean gloves, wearing clean raingear, aprons, helmets, hair nets, beard nets, rubber boots that can be cleaned and sanitized. Test frequently to ensure that seafood product is kept at proper temperature during production and during storage to preserve quality. Maintain rigorous quality standards.

Education			Required
Minimum	Better	Best	Alaska Food Handlers License***
AA Degree*	BA Degree*	HACCP Certification**	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***State			

Quality Control Manager (SOC 113051.01)

Job Type: Master

Annual Salary Range: \$70,000 - \$88,000

Position Description: Collect and analyze production samples to evaluate quality. Analyze quality control test results and provide feedback and interpretation to production management or staff. Stop production if serious product defects are present. Monitor performance of quality control systems to ensure effectiveness and efficiency. Communicate quality control information to all relevant organizational departments, outside vendors, or contractors. Instruct staff in quality control and analytical procedures. Produce reports regarding nonconformance of products or processes, daily production quality, root cause analyses, or quality trends. Participate in the development of product specifications. Review statistical studies, technological advances, or regulatory standards and trends to stay abreast of issues in the field of quality control. Identify critical points in the manufacturing process and specify sampling procedures to be used at these points. Organizes training activities related to product quality and reliability. May investigate and adjust customer complaints regarding quality.

Education			Required
Minimum	Better	Best	
BA Degree*	MA Degree* HACCP Certification**		HAACP Certification** Alaska Food Handlers License*** Driver License±
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***State; ±Alaska Division Of Motor Vehicles, SAVEC Online Course			

Career-ready individuals in Bristol Bay regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. Residents can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which will add greatest value based on their own culture. They seek new methods, practices and ideas from a variety of sources and seek to apply those ideas to their own workplace when appropriate. They take action on their ideas and understand how to bring innovation to an organization which benefits the whole community.

Safety Manager (SOC 172111)

Job Type: Master

Annual Salary Range: \$45,000 - \$55,000

Position Description: Plans, implements, coordinates, and assesses ship vessel's accident, fire prevention, and occupational safety and health programs under general direction of Captain. Utilizes knowledge of industrial safety-related engineering discipline and operating regulations. Develops and recommends new procedures and approaches to safety and loss prevention based on reports of incidents, accidents, and other data gathered from company's personnel department. Disseminates information to department heads and others regarding toxic substances, hazards, carcinogens, and other safety information. Assists department heads and administrators in enforcing safety regulations and codes. Measures and evaluates effectiveness of safety program, using established goals. Conducts ship surveys on periodic and regular basis to detect code violations, hazards, and incorrect work practices and procedures. Develops and reviews safety training for employees. Maintains administrative control of records related to safety and health programs. Prepares and disseminates memos and reports. Maintains required records. Assists personnel department in administering worker compensation program. Duties may be assigned to bridge officers such as first or second mate or engineer.

Education			Required
Minimum	Better	Best	
BA Degree*	MA Degree* HACCP Certification**		HACCP Certification** Alaska Driver License***
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***Alaska Division Of Motor Vehicles, SAVEC Online Course			

With the recent rise in fresh and fresh frozen salmon products, tender vessels which transport fish quickly and efficiently from the fishermen to the processors represent a significant portion of the volume of salmon and the number of jobs required to produce top quality products.

Business Administration Job Descriptions

Office Manager (SOC 113011)

Job Type: Journey-Master

Annual Salary Range: \$35,000 - \$40,000

Position Description: Direct or coordinate the supportive services office of a seafood processing plant. Prepare and review operational reports and schedules to ensure accuracy and efficiency. Set goals and deadlines for the department. Acquire, distribute and store supplies. Analyze internal processes and recommend and implement procedural or policy changes to improve operations, such as supply changes or the disposal of records. Plan, administer and control budgets for contracts, equipment and supplies. Monitor the facility to ensure that it remains safe, secure, and well-maintained. Hire and terminate clerical and administrative personnel. Oversee the maintenance and repair of machinery, equipment, and electrical and mechanical systems.



Education			Required
Minimum	Better	Best	
GED*, High School Diploma	AA or BA Degree*	MA or MS Degree**	
*UAF-BBC; **UA			

Bookkeeper/Payroll (SOC 433031)

Job Type: Entry-Journey

Annual Salary Range: \$33,000 - \$35,000

Position Description: Operate computers programmed with accounting software to record, store, and analyze information. Check figures, postings, and documents for correct entry, mathematical accuracy, and proper codes. Classify, record, and summarize numerical and financial data to compile and keep financial records, using journals and ledgers or computers. Debit, credit, and total accounts on computer spreadsheets and databases, using specialized accounting software.

Operate 10-key calculators, typewriters, and copy machines to perform calculations and produce documents. Receive, record, and bank cash, checks, and vouchers. Comply with federal, state, and company policies, procedures, and regulations. Compile statistical, financial, accounting or auditing reports and tables pertaining to such matters as cash receipts, expenditures, accounts payable and receivable, and profits and losses. Code documents according to company procedures. Reconcile or note and report discrepancies found in records.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma	AA in Accounting* MS Office Certification*		
*UAF-BBC			



Human Resources Manager/Recruiter (SOC 113121)

Job Type: Journey-Master

Annual Salary Range: \$45,000 - \$50,000

Position Description: Serve as a link between management and employees by handling questions, interpreting and administering contracts and helping resolve work-related problems. Analyze and modify compensation and benefits policies to establish competitive programs and ensure compliance with legal requirements. Advise managers on organizational policy matters such as equal employment opportunity and sexual harassment, and recommend needed changes. Perform difficult staffing duties, including dealing with understaffing, refereeing disputes, firing employees, and administering disciplinary procedures. Plan and conduct new employee orientation to foster positive attitude toward organizational objectives. Identify staff vacancies and recruit, interview and select applicants. Plan, direct, supervise, and coordinate work activities of subordinates and staff relating to employment, compensation, labor relations, and employee relations. Plan, organize, direct, control or coordinate the personnel, training, or labor relations activities of an organization. Represent organization at personnel-related hearings and investigations. Administer compensation, benefits and performance management systems, and safety and recreation programs.

Education			Required
Minimum	Better	Best	
High School Diploma	BA Degree*		
*UA			

Bristol Bay's career-ready individuals recognize the value of each step in the educational and experiential process, and they recognize that nearly all career paths require ongoing education and experience.

Network Computer Administrator (SOC 151142)

Job Type: Journey

Annual Salary Range: \$65,000 - \$75,000

Position Description: Install, configure, and support an organization's local area network (LAN), wide area network (WAN), and Internet systems or a segment of a network system. Monitor network to ensure network availability to all system users and may perform necessary maintenance to support network availability. May monitor and test Web site performance to ensure Web sites operate correctly and without interruption. May assist in network modeling, analysis, planning, and coordination between network and data communications hardware and software. May supervise computer user support specialists and computer network support specialists. May administer network security measures.

Education			Required
Minimum	Better	Best	
AA Degree*	MS in Information Technology**		
*UAF-BBC; **UA			



Marketing Manager (SOC 112021)

Job Type: Journey-Master

Annual Salary Range: \$75,000 - \$90,000

Position Description: Plan, direct, or coordinate marketing policies and programs, such as determining the demand for products and services offered by a firm and its competitors, and identify potential customers. Develop pricing strategies with the goal of maximizing the firm's profits or share of the market while ensuring the firm's customers are satisfied. Oversee product development or monitor trends that indicate the need for new products and services.

Education			Required
Minimum	Better	Best	
BA in Business*	MA Degree**		
*UAF-BBC; **UA			

Sales Manager (SOC 112022)

Job Type: Journey-Master

Annual Salary Range: \$80,000 - \$95,000

Position Description: Plan, direct, or coordinate the actual distribution or movement of a product or service to the customer. Coordinate sales distribution by establishing sales territories, quotas, and goals and establish training programs for sales representatives. Analyze sales statistics gathered by staff to determine sales potential and inventory requirements and monitor the preferences of customers.

Education			Required
Minimum	Better	Best	
BA Degree*	MA Degree**		
*UAF-BBC; **UA			

Fleet Manager (SOC 113071)

Job Type: Journey-Master

Annual Salary Range: \$80,000 - \$95,000

Position Description: Plan, direct, or coordinate the port, harbor and vessel operations within an organization or the activities of organizations that provide water transportation services. Analyze expenditures and other financial information to develop plans, policies, or budgets. Plan, organize, or manage the work of subordinate staff to ensure that the work is accomplished in a manner consistent with organizational requirements. Negotiate and authorize contracts with equipment and materials suppliers, and monitor contract fulfillment. Collaborate with other managers or staff members to formulate and implement policies, procedures, goals, or objectives. Monitor spending to ensure that expenses are consistent with approved budgets. Direct investigations to verify and resolve customer or shipper complaints. Direct procurement processes including equipment research and testing, vendor contracts, or requisitions approval.

Education			Required
Minimum	Better	Best	Alaska Driver's License***
AA Degree*	BA Degree**		

*UAF-BBC; **UA; ***Alaska Division Of Motor Vehicles, SAVEC Online Course





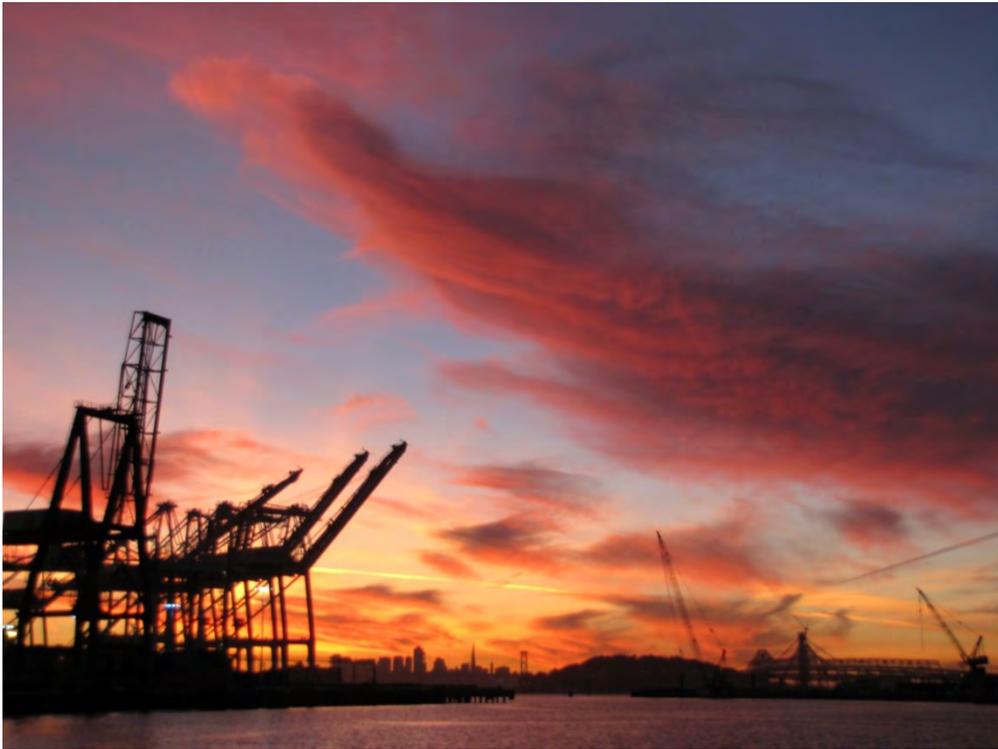


Photo courtesy of Buck Heyano

SECTION THREE: YOUR CAREER IN THE MARITIME TRADES



Cargo container ships carry bristol bay salmon as frozen, canned, fresh iced and salted salmon roe to markets throughout the north pacific. The value of this export—in excess of us\$250 million—makes up about 17% of the total value of all U.S. exports. (ISER 2013)

OVERVIEW OF THE MARITIME TRADES INDUSTRY

The Maritime trades cross three major clusters of Transportation, Hospitality and Tourism, and Manufacturing. Seven unique pathways explore a wide range of 23 career specialties. Overall, these jobs require a greater investment in training and certifications, but the result is much higher wages and salaries than positions in the previous two sections. These jobs also offer employment opportunities nationally and even globally. American labor and sailors are very well paid in ports around the world.



While the box boats (container ships) are getting larger and utilizing higher technology with fewer crew, other types of vessels operating in Alaskan waters can't find enough qualified people to fill the ranks from the bridge to the engine room.

A variety of vessels are employed in the Bristol Bay seasonal processing efforts including fishing boats, tenders, catcher/processors, factory ships, cargo container ships, tug boats, fuel barges, supply vessels, and research vessels. Together, these vessels employ hundreds of people directly related to the processing sector. However, training and experience in the jobs aboard these vessels and those that support them with maintenance and operation services broaden to many other sectors of the economy.



With the rapid expansion of Arctic transportation and exploration workers in maritime trades have much expanded opportunities for high paying jobs on supply vessels, ice breakers, cargo vessels, scientific research ships, and oil and mineral drilling rigs. Alaska's ports also need competent trained dock hands, harbor masters and assistants, and operations managers. These jobs are needed to direct vessel traffic entering and clearing docks as well as off-loading and on-loading cargo, supplies, and fuel. These careers are increasingly year-round in northern ports as exploration and shipping traffic intensifies.



TABLE 4: Jobs in Maritime



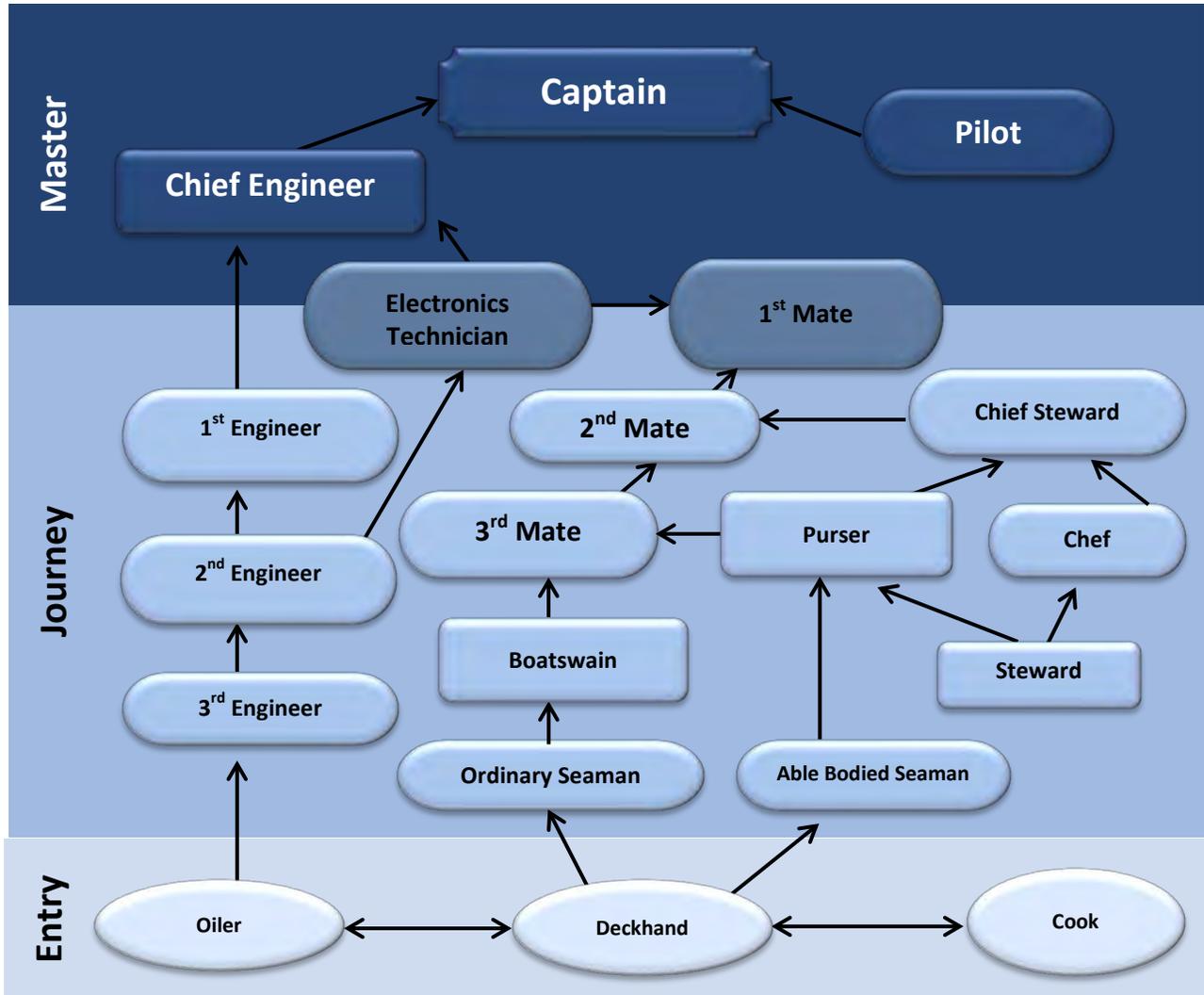
MARITIME

Logistics of moving people and products on the water and related

Cluster Transportation, Distribution & Logistics		SOC*	Skills Cross	Page #
Pathway	Transportation Operations		Walk	
Career Specialty	Deckhand (Ordinary Seaman)	453011		
	Deckhand (Able Seaman)	453011		
	Oiler	535011		
	Engineer	172121		
	Mate	535021		
	Master (Captain)	535021		
	Pilot	535021		
	Assistant Harbor Master	113071		
	Harbor Master (Port Administrator)	113071		
Cluster Transportation, Distribution & Logistics				
Pathway	Safety/Health Management			
Career Specialty	Security	339032		
Cluster Transportation, Distribution & Logistics				
Pathway	Distribution Operations			
Career Specialty	Ship Loaders	537121		
Cluster Hospitality & Tourism				
Pathway	Food/Beverage Services			
Career Specialty	Cook	352012		
Pathway	Lodging			
Career Specialty	Steward	536061		
Cluster Manufacturing				
Pathway	Production			
Career Specialty	Welder/Cutter	514121		
	Electronics Technician	492094		
	Electrical Technician	492094		
	Carpenter	472031		
	Electrician	472111		
	Fiberglass Worker	516091		
	Refrigeration Mechanic	499021		
Cluster Manufacturing				
Pathway	Maintenance Install/Repair			
Career Specialty	Plumber/Pipefitter/Steamfitter	472152		
	Industrial Mechanic	499041		
	Electrician	472111		

*SOC=Standard Occupational Code developed by the US Dept of Labor.

CAREER PATHWAYS FOR MARITIME VESSEL OCCUPATIONS



Maritime Aboard Vessel Career Pathways aligns with the following sectors:



Food and Beverage Services Job Descriptions

Cook (SOC 352012.0)

Job Type: Journey

Annual Salary Range: \$18,000 – \$20,000

Position Description: Cooks are responsible for the providing quality meals to the crew and handling inventory and ordering of supplies for the galley. Cooks prepare, season, and cook a wide range of foods, such as soups, salads, entrees, and desserts. May be responsible for ordering all needed galley supplies on a trip-by-trip basis within a budget limit. Clean, cut, and cook meat, fish, or poultry. Cook foodstuffs according to menus, special dietary or nutritional restrictions, or numbers of portions to be served. Clean and inspect galley equipment, kitchen appliances, and work areas to ensure cleanliness and functional operation. Wash pots, pans, dishes, utensils, and other cooking equipment. Compile and maintain records of food use and expenditures. Take inventory of supplies and equipment. Depending on the size of vessel and the number of crew members, there may be two or more cooks assigned to different watches or with different duties.



Education			Required
Minimum	Better	Best	
GED*, High School Diploma	CPR/First Aid** Cook's Helper/Prep Cook Certificate***	Cook/Culinarian Certificate±	Alaska Food Handler's License*** Driver License‡ Alaska Crewmember License∞
*UAF-BBC; **UAF-BBC; SAVEC, AVTEC; ***State; ±AVTEC; ‡Alaska Division Of Motor Vehicles, SAVEC Online Course; ∞ADF&G			

Steward (SOC 536061)

Job Type: Journey

Annual Salary Range: \$21,000 – \$35,000

Position Description: In general, the majority of ship stewards work in galley or housekeeping departments. Designated as Ordinary Seaman, Stewards are employed as cooks, waiters, bartenders, housekeepers, launderers and more. They may also serve the ship's officers on the bridge during watches. On large vessels, a steward may report to a Chief Steward who has additional responsibilities. The ship steward may be responsible for managing the ship store, laundry facilities, and other duties as assigned. Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people aboard the vessel, providing customer and personal services.

Education			Required
Minimum	Better	Best	Driver License± Alaska Crewmember License‡ and/or carry Merchant Mariner Credential as Ordinary Seaman***
GED*, High School Diploma	CPR/First Aid**	USCG Drill Instructor***	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***USCG; ±Alaska Division Of Motor Vehicles, SAVEC Online Course; ‡ADF&G			

Career-ready individuals of Bristol Bay consistently act in ways that align to personal and community-held ideals and principles while employing strategies to positively influence others in the workplace.

- They have a clear understanding of integrity and act on this understanding in every decision.*
- They use a variety of means to positively impact the direction and actions of a team or organization, and they apply insights into human behavior to change others' actions, attitudes and/or beliefs.*
- They recognize the near-term and long-term effects that management's actions and attitudes can have on productivity, morale and organizational culture.*

Security Job Descriptions

Security Officer (Mate) (SOC 339032)

Job Type: Journey

Annual Salary Range: \$50,000 - \$70,000

Position Description: Guard, patrol, and monitor the vessel to prevent theft, violence, or boarding by pirates. May operate x-ray and metal detector equipment. Monitor and authorize entrance and departure of employees, visitors, and other persons to guard against theft and maintain security of the vessel. Write reports of daily activities and irregularities such as equipment or property damage, theft, presence of unauthorized persons, or unusual occurrences. Contact local police or harbor patrol or USCG in cases of emergency, such as presence of unauthorized persons. Answer alarms and investigate disturbances. Patrol dock and port areas where the vessel is docked to prevent and detect signs of intrusion and ensure security of doors, windows, and gates.

Warn persons of rule infractions or violations, and apprehend or deter violators from boarding vessels, using force when necessary.

Education			Required
Minimum	Better	Best	
AA Degree*	BA Degree* CPR/First Aid** Public Safety Training***	USCG Drill Instructor±	Driver License‡ Fire Arm Safety Certificate‡ Fire Arm License∞
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***State; ±USCG; ‡Alaska Division Of Motor Vehicles, SAVEC Online Course; Carrying a concealed weapon license is not required in Alaska for persons 21 years old or older who may legally possess a firearm.			



Out on Deck Job Descriptions

Deck Hand (SOC 453011)

Job Type: Journey

Annual Salary Range: \$36,000 - \$40,800

Position Description: Deckhands are responsible for the handling and hauling of gear, operation of deck equipment, and the loading and unloading of inventory. Deckhands are experienced fishermen who have worked their way up and are well compensated. A deckhand should have the ability to handle and operate all deck gear, handle lines effectively, and operate cargo handling equipment in a safe manner.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma	CPR/First Aid** USCG MMC***	USCG Ordinary Seaman MMC***	Alaska Crewmember license± USCG Merchant Mariner Credential***
*UAF-BBC;** UAF-BBC, SAVEC, AVTEC; ***USCG; ±ADG&G			

Career-ready individuals in the maritime trades readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem. They thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.

Boatswain (Bosun) (SOC 453011)

Job Type: Journey

Annual Salary Range: \$45,000 - \$50,000

Position Description: The boatswain mate (bosun) is responsible for supervising all deck procedures. A bosun is the senior deckhand who is capable of working alongside the Captain and Mate to ensure proper security and safety procedures are followed. The bosun supervises deck operations and coordinates hauling of gear, maintain gear and deck equipment inventory, communication skills needed to coordinate with officers, loading and unloading procedures. Further, he or she should be certificated to perform USCG-mandated shipboard drills.



Education			Required
Minimum	Better	Best	
GED*, High School Diploma	CPR/First Aid** USCG Able Body Seaman MMC***	USCG Drill Instructor***	Alaska Crewmember License± USCG Merchant Mariner Credential***
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***USCG; ±ADG&G			

*Shipping, distribution, and secondary processing provided income impacts of approximately US\$43 million directly employing nearly another 1,000 workers.
(ISER 2013)*

In the Engine Room Job Descriptions

Oiler/Engineer (SOC 535011)

Job Type: Journey

Annual Salary Range: \$28,000 - \$37,000

Position Description: Maintain government-issued certifications, as required. Have the ability to lower and man lifeboats when emergencies occur, stand by wheels when ships are on automatic pilot and verify accuracy of courses, using magnetic compasses, steer ships under the direction of commanders or navigating officers or direct helmsmen to steer, following designated courses, handle lines to moor vessels to wharfs, to tie up vessels to other vessels, or to rig towing lines. Operate, maintain, or repair ship equipment, such as winches, cranes, derricks, or weapons system. Lubricate and perform routine checks on machinery. Have knowledge of machines and tools, including their designs, uses, repair, and maintenance; monitor gauges, dials, or other indicators to ensure machinery is working properly.

Education			Required
Minimum	Better	Best	
GED*, HS	Basic Safety/Fire Fighting Training STCW**	Automotive/Diesel/Welding Technician Certifications***	Alaska Crewmember license± USCG Merchant Mariner Credential‡
*UAF-BBC; **UA-SE; ***AVTEC; ±ADF&G; ‡USCG			

Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems.

- *They are flexible and adaptive in acquiring and using new technology.*
- *They are proficient with ubiquitous technology applications.*
- *They understand the inherent risks -- personal and organizational -- of technology applications, and they take actions to prevent or mitigate these risks.*

Chief Engineer (SOC 172121)

Job Type: Master

Annual Salary Range: \$82,000 - \$92,000

Position Description: The Chief Engineer is responsible for maintaining all machinery aboard the ship, and is expected to ensure the safe and effective operation of all equipment. A Chief Engineer should have the ability to handle all refueling operations, make needed repairs in a safe and timely manner, pay attention to detail when logging and recording all repairs and maintenance.



Education			Required
Minimum	Better	Best	
AA Degree*	Automotive/Diesel/Welding Certification	USCG 1 st Engineer MMC***	Alaska Crewmember license±
Basic Safety/Fire Fighting Training	Medical Care Provider**	USCG Licenses: 300hp and 1,000 ton uninspected	USCG Merchant Mariner Credential***
STCW**	Standards of Training Certification and Watchkeeping for Seafarers (STWC)**	F/V license***	
USCG Merchant Mariner Credential***			
*UAF-BBC; **Southern California and Northwest Merchant Mariner Training Centers; ***USCG; ±ADF&G			

Career-ready individuals take personal ownership of their own educational and career goals, and they regularly act on a plan to attain these goals.

- *They understand their own career interests, preferences, goals and requirements.*
- *They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship.*

At the Helm

Mate (SOC 535021)

Job Type: Master

Annual Salary Range: \$30,000 - \$37,000

Position Description: Steer vessels, using navigational devices, such as compasses or sextants, or navigational aids, such as lighthouses or buoys. Stand watches on vessels during specified periods while vessels are under way. Determine geographical positions of ships, using GPS, azimuths of celestial bodies, or computers, and use this information to determine the course and speed of a ship. Inspect equipment, such as cargo-handling gear, lifesaving equipment, visual-signaling equipment, or fishing, towing, or dredging gear, to detect problems. Participate in activities related to maintenance of vessel security. Arrange for ships to be stocked, fueled, or repaired. Observe loading or unloading of cargo or equipment to ensure that handling and storage are performed according to specifications. Supervise crew members in the repair or replacement of defective gear or equipment. The Mate on a fishing vessel is expected to act as a backup to the Captain, and should be familiar with all aspects of the industry. Mates should have the ability to maintain all records, including offload paperwork and personnel files, and assist with all Captains' responsibilities.

Education			Required
Minimum	Better	Best	
AA Degree* Basic Safety/Fire Fighting Training** Standards of Training Certification and Watchkeeping for Seafarers (STCW)*** USCG Merchant Mariner Credential±	Basic Electronics** Radar Observer Certification**	USCG OUPV License±	Alaska Crewmember license‡ USCG Merchant Mariner Credential±
*UAF-BBC; **AVTEC; ***Southern California and Northwest Merchant Mariner Training Centers; ±USCG; ‡ADF&G			

Captain (Master) (SOC 535021)

Job Type: Master

Annual Salary Range: \$50,000 - \$63,000

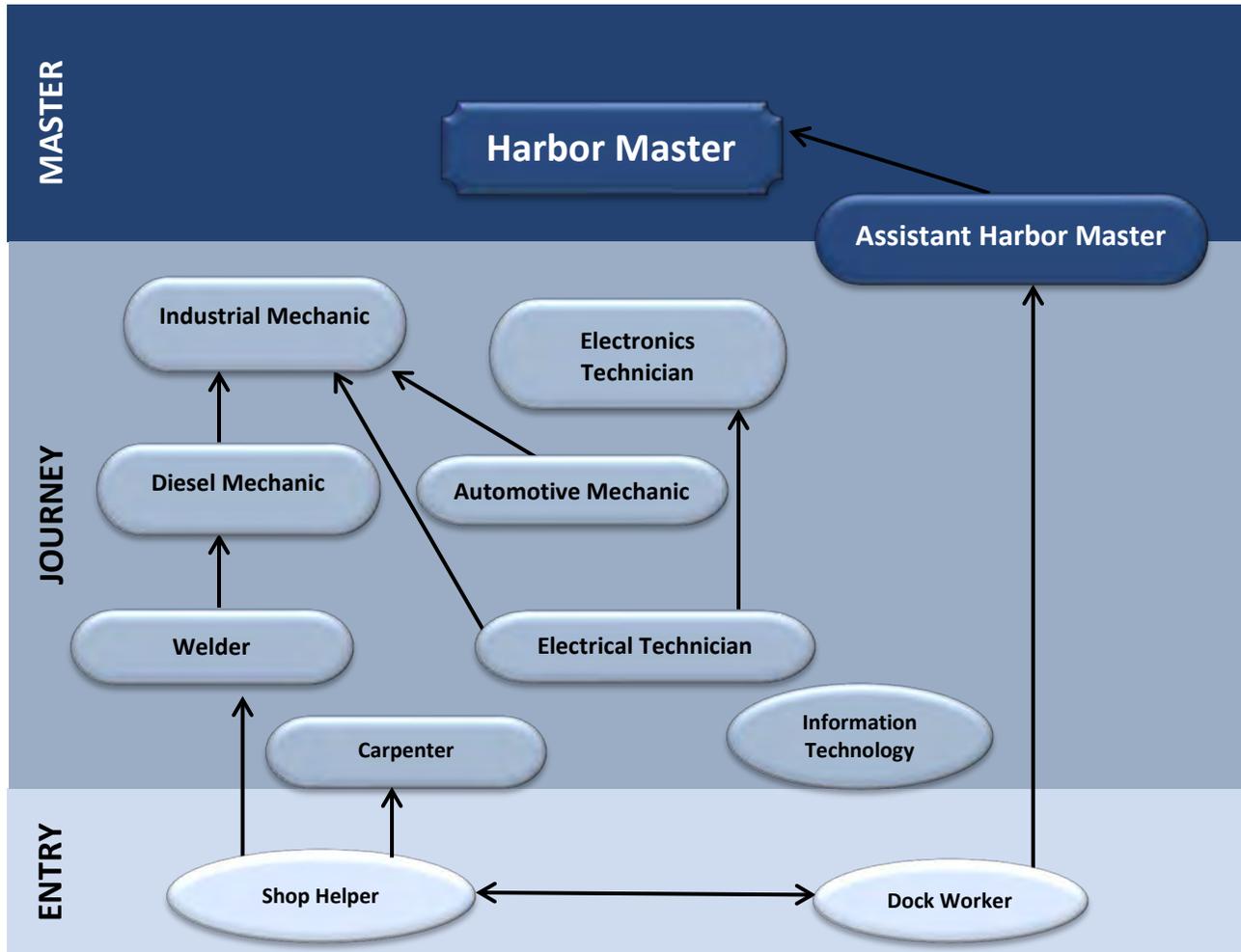
Position Description: Captains are expected to lead by example. An effective Captain should be familiar with all aspects of the fishing vessel’s operation, and should embody the following qualifications: navigate vessel effectively and know all related regulations, maintain safe practices aboard the ship and conduct safety and security drills, supervise proper allocation of crew shares based on performance, maintain discipline, administer required random drug screenings, properly handle paperwork and communication with central office, and be willing to work with Operations Managers to constantly refine and improve the business plan. The captain operates the vessel, using radios, depth finders, radars, lights, buoys, or lighthouses; computes positions, sets courses, and determines speeds, using charts, area plotting sheets, compasses, sextants, and knowledge of local conditions; inspects the vessel to ensure efficient and safe operation of vessels and equipment and conformance to regulations.



Photo courtesy of Buck Heyano

Education			Required
Minimum	Better	Best	
All STCW Training* USCG Merchant Mariner Credential**	USCG OUPV License**	USCG Master 200GT**	USCG MMC** USCG OUPV License** Alaska Vessel Operator License*** USCG 1600 ton + Uninspected Fishing Vessel License** Alaska Driver License***
*Southern California and Northwest Merchant Mariner Training Centers; **USCG; ***Alaska Division Of Motor Vehicles, SAVEC Online Course			

CAREER PATHWAYS IN HARBOR OPERATIONS & VESSEL SUPPORT SERVICES



Harbor Operations and Vessel Support Career Pathways align with the following sectors:



Harbor Operations Job Descriptions

Dock Worker (Ship Loader, Stevedore) (SOC 537121)

Job Type: Entry Level to Mid-Level

Annual Salary Range: \$40,000 - \$50,000

Position Description: Load and unload chemicals and bulk solids, such as coal, sand, and or food products into or from trucks, or ships using hoists, cranes, and forklifts or other material moving equipment. Verify barge, or container numbers to ensure placement accuracy based on written or verbal instructions. Operate ship loading and unloading equipment such as cranes, conveyors, forklifts, hoists, and other specialized material handling equipment. Monitor product or container movement to and from storage areas, coordinating activities with other workers to ensure constant product flow. Operate industrial trucks, tractors, loaders and other equipment to transport materials and containers to and from transportation vehicles and loading docks, and to store and retrieve materials in warehouses. Seal outlet valves on barges and trucks. Mechanical aptitude for working with machines and tools, including their designs, uses, repair, and maintenance. Ability to operate forklifts, cranes, and hoists safely.



Education			Required
Minimum	Better	Best	
GED*, High School Diploma Driver Education**	Pacific Coast Congress (PCC) Certificates***	AA Degree± Commercial Driver License (CDL)‡	Alaska Driver License‡ Background Check Transportation Workers Identification Credential (TWIC) waiver for Bristol Bay ports∞
*UAF-BBC; **SAVEC Online Course; ***UA-SE; ±UAF-BBC; ‡Alaska Division Of Motor Vehicles, SAVEC Training; ∞TSA			

Assistant Harbor Master (SOC 113071)

Job Type: Entry Level to Mid-Level

Annual Salary Range: \$30,000 - \$55,000

Position Description: The Assistant Harbormaster reports directly to the Harbormaster. This may be is a seasonal or part-time position. Collect transient moorage fees and ramp fees. Work



and meet arriving vessels, fishing boats and barges, as needed. Report any mechanical or structural failures of the facilities to the Harbormaster and assist in repair and maintenance. Perform security rounds. Have a solid understanding of the port’s marine infrastructure—cranes, ice machines, oil and fuel tanks, fuel hoists, etc.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma	Pacific Coast Congress (PCC) Certificates**	Associate Degree* Commercial Driver License (CDL)***	Alaska Driver License*** Background Check± Transportation Workers Identification Credential (TWIC) waiver for Bristol Bay ports ‡
*UAF-BBC; **UA-SE; ***Alaska Division Of Motor Vehicles, SAVEC training; ±Employer; ‡TSA			

Cargo container ships carry Bristol Bay salmon as frozen, canned, fresh iced and salted salmon roe to markets throughout the North Pacific. The value of this export—in excess of US\$250 million--makes up about 17% of the total value of all U.S. exports.

(ISER 2013)

Harbor Master/Port Administrator (SOC 113071)

Job Type: High Level

Annual Salary Range: \$80,000 - \$95,000

Position Description: Plan, direct, or coordinate the port or harbor operations within an organization or the activities of organizations that provide water transportation services. Analyze expenditures and other financial information to develop plans, policies, or budgets. Implement tariffs and other operations policies and standards, including determining safety procedures for the handling of cargo and materials across docks, storage yards, and other areas of the waterfront. Plan, organize, or manage the work of subordinate staff to ensure that the work is accomplished in a manner consistent with organizational requirements. Negotiate and authorize contracts with equipment and materials suppliers, and monitor contract fulfillment. Collaborate with other managers or staff members to formulate and implement policies, procedures, goals, or objectives. Monitor spending to ensure that expenses are consistent with approved budgets. Supervise workers assigning tariff classifications and preparing billing. Promote safe work activities by conducting safety audits, attending company safety meetings, or meeting with individual staff members. Direct investigations to verify and resolve customer or shipper complaints. Direct procurement processes including equipment research and testing, vendor contracts, or requisitions approval.



Education			Required
Minimum	Better	Best	
High School Diploma Pacific Coast Congress (PCC) Certificates*	Bachelor Degree** Supervisory Training**	Peace Officer and Port Security Training***	Alaska Driver License, Commercial Driver License (CDL)± Background Check‡ Transportation Workers Identification Credential (TWIC) waiver for Bristol Bay ports ∞
*UA-SE; **UAF-BBC; ***State DPS; ±Alaska Division Of Motor Vehicles, SAVEC Training; ‡Employer; ∞TSA			

Vessel Piloting Job Description

Vessel Piloting (Pilot (Ship) (SOC 535021)

Job Type: Master Level

Annual Salary Range: \$60,000 – \$75,000

Position Description: Command ships to steer them into and out of harbors, estuaries, straits, or sounds, or on rivers, lakes, or bays. Must be licensed by U.S. Coast Guard with limitations indicating class and tonnage of vessels for which license is valid and route and waters that may be piloted. Set ships' courses that avoid reefs, outlying shoals, or other hazards, using navigational aids, such as lighthouses or buoys. Direct courses and speeds of ships, based on specialized knowledge of local winds, weather, water depths, tides, currents, and hazards. Steer



ships into or out of berths or signal tugboat captains to berth or un-berth ships. Prevent ships under their navigational control from engaging in unsafe operations. Consult maps, charts, weather reports, or navigation equipment to determine and direct ship movements. Give directions to crew members who are steering ships. Serve as a vessel's docking master upon arrival at a port or when at a berth. Operate ship-to-shore radios to exchange information needed for ship operations.

Education			Requirements
Minimum	Better	Best	
GED*, High School Diploma Driver Education** USCG Merchant Mariners Credential*** USCG Master License***			Alaska Driver License± Background Check‡ Transportation Workers Identification Credential (TWIC) waiver for Bristol Bay ports∞
*UAF-BBC; **SAVEC Online Course; ***USCG; ±Alaska Division Of Motor Vehicles; ‡Employer; ∞TSA			

Vessel Support Services Job Descriptions

Carpenter (SOC 472031)

Job Type: Any Level

Annual Salary Range: \$40,000 – \$50,000

Position Description: Construct, erect, install, or repair vessel structures and fixtures made of wood; building frameworks, including partitions, joists, studding, hull and decks; and wood stairways, window and door frames.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma	Basic Carpentry**	Trade Apprenticeship***	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***Union or Employer			

Fiber Glass Worker (SOC 516091)

Job Type: Any Level

Annual Salary Range: \$25,000 - \$32,000

Positions Description: Set up, operate, or tend machines that extrude and form continuous filaments from synthetic materials such as fiberglass; apply, restore, and build vessel hulls and other structures using synthetic materials and a variety of mechanical tools.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma	Basic Carpentry** Fiber Glassing**	Trade Apprenticeship***	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***Union or Employer			

Refrigeration Technician (SOC 499021)

Job Type: Any Level

Annual Salary Range: \$45,000 – \$55,000

Position Description: Install or repair heating, central air conditioning, or refrigeration systems, including oil burners, hot-air furnaces, and heating stoves, tank cooling equipment and freezers.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma	Basic Carpentry** Welding**	Trade Apprenticeship***	

*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***Union or Employer

"Twenty years from now you will be more disappointed by the things that you didn't do than by the ones you did do. So throw off the bowlines. Sail away from the safe harbor. Catch the trade winds in your sails. Explore. Dream. Discover." - Mark Twain



Industrial Mechanic (SOC 499041)

Job Type: Master Level

Annual Salary Range: \$44,000 - \$46,000

Position Description: Repair, install, adjust, or maintain marine industrial production and processing machinery and pipeline distribution systems including hydraulic systems, cranes and hoists.

Education			Required
Minimum	Better	Best	
GED*, High School Diploma	Basic Mechanics**	Trade Apprenticeship***	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***Union or Employer			

Welder (SOC 514121)

Job Type: Any Level

Annual Salary Range: \$30,000 – \$35,000

Position Description: Use hand-welding, flame-cutting, hand soldering, or brazing equipment to weld or join metal components or to fill holes, indentations, or seams of marine fabricated metal products; repair hulls, decks, hatches, tanks, holds and other steel or aluminum structures on vessels.



Education			Required
Minimum	Better	Best	
GED*, High School Diploma	Basic Welding**	Trade Apprenticeship***	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***Union or Employer			

Electrical/Electronic Technician (SOC 492095)

Job Type: Journey-Master Level

Annual Salary Range: \$54,000 – \$60,000

Position Description: Test, maintain, and repair electrical systems and electronic relay and control systems; Inspect and test equipment and circuits to identify malfunctions or defects, using wiring diagrams and testing devices such as ohmmeters, voltmeters, or ammeters; troubleshoot and solve equipment problems and determine optimum equipment functioning.



Education			Required
Minimum	Better	Best	
GED*, High School Diploma	Basic Electronics**	Trade Apprenticeship***	
*UAF-BBC; **UAF-BBC, SAVEC, AVTEC; ***Union or Employer			

What you need to know and do after completing a program of study in the Maritime Transportation Cluster, Operations Career Pathway:

- 1. Develop and evaluate transportation plans to move people and/or goods to meet customer requirements.*
- 2. Analyze transportation operations in order to improve quality and service levels and increase efficiency.*
- 3. Comply with policies, laws and regulations to maintain safety, security and health and mitigate the economic and environmental risk of transportation operations.*



APPENDIX 1 - GLOSSARY

Apprenticeship - An apprenticeship is a stated time of on-the-job training blended with a course of study to prepare a worker for a highly skilled occupation. Apprenticeships are a good way to experience hands on training under the mentorship of a journeyman worker. Mostly found in the skilled trades and crafts—like carpentry, electrical, welding and many maritime jobs like engineer, mate, and captain—apprenticeships require about 144 hours of study on the theoretical and technical aspects of the occupation.

AVTEC - Alaska Vocational Technical Center, one of Alaska’s premier regional training centers offering certificated and license-focused programs of study in USCG approved maritime courses, information technology, industrial trades, health care and marine safety training. AVTEC is located in Seward, Alaska.

Associate or AA degree - Associate degrees are programs of 60 semester credits or more that combine focused coursework in a major field with broad studies in the general education areas of written and oral communication, humanities, math, and natural and social sciences. Associate of Arts (A.A.) degrees are usually considered preparatory to a baccalaureate programs; Associate of Applied Sciences (A.A.S.) degrees are considered terminal degrees leading to pursuit of a career path.

Bachelor's or BA degree - Baccalaureate, or bachelor, degrees are organized programs of study that consist of 120 semester credits or more. They provide extensive preparation in specific knowledge areas, and promote in students the abilities to reason, research, and analyze, and to form, support and communicate their ideas and opinions.

CTE - Career and Technical Education is an organized education program that offers a sequence of courses, providing individuals with the academic, technical, and personal skills and knowledge needed to prepare for future education and careers.

Career Clusters - The National Career Clusters™ Framework has been developed by The National Association of State Directors of Career Technical Education Consortium (NASDCTEc). This framework provides a structure for organizing and delivering quality CTE programs by developing sequences of essential knowledge and skills required in clusters of career pathways. It also functions as a useful guide in developing programs of study bridging secondary and postsecondary curriculum and for creating individual student plans of study for a complete range of career options. In total, there are 16 Career Clusters in the National Career Clusters™ Framework, representing more than 79 Career Pathways to help learners navigate their way to greater success in college and career. (www.careertech.org/career-clusters/glance/)

Career Ladders and/or Career Lattices - Career ladders and lattices consist of a group of related jobs that comprise a career. They often include a pictorial representation of job progression in a career as well as detailed descriptions of the jobs and the experiences that facilitate movement between jobs.

Career ladder/lattices are not necessarily organization-specific; they frequently span multiple organizations because movement within one organization may not be possible. Career ladders display only vertical movement between jobs. In contrast, career lattices contain both vertical and lateral movement between jobs and may reflect more closely the career paths of today's work environment.

Hazard Analysis and Critical Control Point - HACCP is a system of safety and food production that to ensure safe procedures and products. Certification following a rigorous 40 hour training course is required.

Hazardous Waste Operations and Emergency Response - HAZWOPR positions in a company deal with cleanup operations, corrective actions, treatment, storage and disposal of hazardous waste and emergency response operations on site. Training and certification are required.

Industry Certification - Industry Certifications identify qualifications required or recognized by employers for employment in certain positions. Industry may identify the contents, process and/or awarding of this designation or another entity may be responsible (e.g., the state Board of Marine Pilots governs pilot licenses).

Job Shadowing - Job shadowing shows students how the work day progresses for a particular position in a field. This short-term, usually one to three days, is a temporary, unpaid exposure to the workplace in an occupational arena of interest to the student. Shadowing an employee throughout the work day shows the student the environment, employability and occupational skills in practice, the value of professional training and potential career options. It increases career awareness, helps students model workforce readiness behavior, and strengthens the link between classroom learning and work requirements.

Occupational Endorsement (OE) - Occupational endorsements are postsecondary certificates requiring 9 - 29 credits to complete. These certificates provide the specialized knowledge and skills needed in specific employment sectors.

On-the-Job Training - Tasks learned on the job through day-to-day experiences with instruction from senior level employees, which is often combined with course work.

Programs of Study - A CTE Program of Study (CTEPS) identifies a designed program that includes a 4-year high school program of academic and technical courses and a postsecondary program that, when successfully completed, provide students with the proof (through a degree, certification, license, etc.) that they have developed the knowledge, skills and abilities to successfully enter the workforce in a specific occupational area.

Personal Learning and Career Plan (PLCP) – A Personal Learning and Career Plan is a framework for a student's or adult learner's personal transition from one education level to the next, and from education to the workplace. It is developed by the learner and includes the steps to be completed for the learner to acquire the personal, academic, and technical skills and abilities required to successfully complete a chosen Program of Study and be prepared for a successful entry into a career area. As a learner

completes each step, the PLCP also serves as a vehicle to contain the body of evidence that shows to parents, education staff, and employers that the learner has acquired the skills and abilities needed to leave the education system and enter into their chosen career area.

SAVEC - The Southwest Alaska Vocational and Education Center, located in King Salmon, is a regional training center offering many short-term programs of study that lead to vocational certificates and or occupational endorsements.

STCW - The US Coast Guard “Standards for Training, Certification, and Watchkeeping,” are courses available at AVTEC that lead to lucrative jobs in Alaska’s maritime industry aboard fishing vessels, tugs, oil rigs, container ships, and many types of research and support vessels. Following study of an STCW course, students can take the USCG test for the certification at AVTEC.

Tech Prep - Alaska Tech Prep is a school-to-careers strategic partnership among secondary education, post-secondary education, regional training centers, and business and industry that prepares Alaska's young people for today's skilled workforce. Alaska Tech Prep uses a Program of Study (PoS)—a sequential course of study that aligns high school to post-secondary education and workforce opportunities as part of a career pathway.

TWIC – “Transportation Workers Identification Credential,” Homeland Security now requires that all dock workers now have TWIC cards. Although Bristol Bay transportation employees were exempt in 2013, that will likely change in the future. The TWIC requires security briefing and a valid United States proof of citizenship and is available from the Transportation Safety Administration (TSA).

UAF-BBC- University of Alaska Fairbanks Bristol Bay Campus became one of five rural campuses in the College of Rural Alaska in 1987. The campus serves an area of approximately 55,000 square miles and a total of 32 communities as far south as Ivanof Bay, as far north as Port Alsworth, as far west as Togiak, and east to King Salmon. The main campus is located in Dillingham with outreach centers in King Salmon, Togiak and New Stuyahok. BBC offers Bachelor degrees, Associate degrees, Certificates and Occupation Endorsements as well as local courses covering a variety of subjects from computers to welding to art.

WorkKeys® - ACT WorkKeys is a job skills assessment system that is administered to high school students and clients in Alaska DOLWD Job Centers. Its goal is to help employers select, hire, train, develop, and retain a high-performance workforce. (See Work Keys in Appendix 1)

APPENDIX 2 - ONLINE CAREER DEVELOPMENT RESOURCES

Alaska Career Information System (AKCIS)

<https://akcis.org/>

A web-based program, designed to assist students and job seekers in planning their education and career. You must register to use it. It allows users to explore career options, programs of study, colleges, and ways to finance post-secondary education. Users may create a portfolio allowing them to track, save and personalize their career exploration journey as well as create a course plan, create a resume, and save assessment results and other achievement notes.

Alaska Job Center Network

<http://jobs.alaska.gov/jobseeker.htm>

Alaska Department of Labor and Workforce Development Job Seeker page offers many links to jobs resources online.

Alaska Labor Exchange System (ALEXsys)

<https://alexsys.labor.state.ak.us/>

An online resource for selecting and finding a new career or job and locate suitable education and training. You must register to use it. The program allows users to create a skills-based resume, search occupational information, search job openings statewide or in a specific area, and obtain labor-market information. Alaska employers can post positions and search resumes that match the skills and abilities required for the position.

Alaska Sea Grant and Marine Advisory Program

P.O. Box 1070, Dillingham, AK 99576 | Phone (907) 842-8323 | Fax (907) 842-5692

<http://seagrant.uaf.edu/map/index.html>

This statewide outreach and technical assistance program helps Alaskans wisely use, conserve, and enjoy Alaska's marine and coastal resources.

Alaska Source Link

<http://www.aksourcelink.com>

This site 'links Alaska small businesses to the right resources at the right time.' It is for business entrepreneurs who need to know what laws and regulations they need to comply with. The site is rich with resources for direct marketing of products, creating and sustaining cooperatives for businesses, developing and implementing best practices in the field, and many other critical commercial topics to making your business a success. For seafood industry specific resources, type in SEAFOOD in the search box.

Alaska Vocational Technical Education Center

P.O. Box 889, 809 2nd Avenue, Seward, Alaska 99664 | Phone (907) 224-3322 | FAX (907) 224-4400
<http://www.avtec.edu/>

Alaska's Institute of Technology offers a top tier training curriculum including Culinary, Allied Health, Maritime, Energy, and Information Technology.

Bristol Bay Economic Development Corporation

P.O. Box 1464, Dillingham, Alaska 99576 | Phone 907-842-4370 | FAX 907-842-4336
<http://bbedc.com/>

BBEDC provides jobs, training and educational opportunities to CDQ-eligible residents, and economic development tools and resources for communities. Bristol Bay students in grades 6 through 12 are invited to attend BBEDC annual Salmon Camp. Learn about salmon biology, stream ecology and water quality, fisheries management and lots more, catching and tagging salmon and visit spawning areas. A partial list of programs includes: Bering Sea groundfishing jobs; Harvey Samuelsen Scholarship Program; Vocational Funding; Internship Programs; Technical Assistance with business plans and feasibility studies; Infrastructure and Seed Funds; and Fisheries and Economic Research.

Bristol Bay Native Association

P.O. Box 310, Dillingham, Alaska 99576
<http://www.bbna.com/>

The Bristol Bay Native Association maintains and promotes a strong regional organization supported by the Tribes of Bristol Bay to serve as a unified voice to provide social, economic, cultural, educational opportunities and initiatives to benefit the Tribes and the Native people of Bristol Bay. BBNA is implementing the Bristol Bay Rural Jobs Accelerator Grant through SAVEC to provide specialized fisheries, seafood processing, and maritime training for residents.

Bristol Bay Job Center

<http://www.jobs.alaska.gov/>

503 Wood River Road Dillingham, AK 99576-1149 | Phone 907-842-5579

Dillingham Alaska Unemployment Career Center Office provides individuals seeking employment all the latest tools to find and keep that special job. Employers will find assistance in recruiting new employees including a national job listing network, applicant screening, and space in the centers to conduct testing and employment interview.

Career Clusters in the National Career Clusters™ Framework

<http://www.careertech.org/career-clusters/glance/>

The model provides a structure for organizing and delivering quality CTE programs by developing sequences of essential knowledge and skills required in clusters of career pathways. It also functions as a useful guide in developing programs of study bridging secondary and postsecondary curriculum and for creating individual student plans of study for a complete range of career options. In total, there are 16 Career Clusters in the National Career Clusters™ Framework, representing more than 79 Career Pathways to help learners navigate their way to greater success in college and career.

Jobs in the Alaska Seafood Industry

<http://jobs.alaska.gov/seafood/>

This link takes you to the Department of Labor & Workforce Development Division of Employment Security site which contains specific seafood industry jobs information.

KeyTrain/Career Ready 101

<http://www.careerready101.com/>

A comprehensive online individualized instructional skill development curriculum designed to prepare learners for the WorkKeys® job skills assessments. You must register to use it. Career Ready 101 complements the program by providing a career exploration component along with employability skills training. Self-paced or instructor-led lessons are available in areas such as financial literacy, resume writing, job searching, and employability skills. Includes a built in teacher-management component allowing educators to control how and when students move through the curriculum and to monitor students' progress.

O*Net OnLine

<http://www.onetonline.org/>

Here you can find more detail on the career specialties. U.S. Department of Labor, [Employment & Training Administration](#), by the National Center for O*NET Development.

Southwest Alaska Vocational and Education Center

P.O. Box 615, King Salmon, AK 99613 | Phone (907) 246-4600 | Fax: (907) 246-4607

<http://www.savec.org/>

SAVEC is a rapid response training center providing industry-driven education in occupations essential for Alaskans to fill 70-80% of state jobs that do not require a college degree. SAVEC offers numerous programs of study designed to train and certify local residents to take advantage of jobs in the fisheries, processing and maritime trades in the region.

UAF-Bristol Bay Campus

P.O. Box 1070, Dillingham, AK 99576 | Phone 907-842-5109 | Fax 907-842-5692

<http://www.uaf.edu/bbc/>

UAF-BBC became one of five rural campuses in the College of Rural Alaska in 1987. The campus serves an area of approximately 55,000 square miles and a total of 32 communities as far south as Ivanof Bay, as far north as Port Alsworth, as far west as Togiak, and east to King Salmon. The main campus is located in Dillingham with outreach centers in King Salmon, Togiak and New Stuyahok. BBC offers Bachelor degrees, Associate degrees, Certificates and Occupation Endorsements as well as local courses covering a variety of subjects from computers to welding to art.

U.S. Department of Labor, Bureau of Labor Statistics, Occupational Outlook Handbook

<http://bls.gov/ooh/home.htm>

This is the Nation's premier source for career information. The profiles featured cover hundreds of occupations and describe What They Do, Work Environment, How to Become One, Pay, and more. Each profile also includes BLS employment projections for the 2010–20 decade.

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*Give a man a Fish and you feed him for a day.
Teach a man to fish, and you feed him for a lifetime.*

Author Unknown



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