

June 2016

Economic Impact of the Ketchikan Shipyard

Prepared for:

Alaska Industrial Development and Export Authority (AIDEA)



Prepared by

McDowell
GROUP

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Executive Summary

The purpose of this study, *The Economic Impact of the Ketchikan Shipyard*, is to measure the economic benefits of the largest vessel repair and construction facility in Alaska and the primary maintenance facility for Alaska Marine Highway System (AMHS) vessels. This study provides a 2015 snapshot of the local economic impacts of the Ketchikan Shipyard (KSY) in terms of employment, wages, local spending, and taxes. The report also describes a range of other benefits stemming from shipyard-related activity. Following are key findings of the study.¹



Employment and Wage Impact of the Shipyard

- With annual average employment of 157 workers in 2015, and \$10 million in total annual wages and salaries, the shipyard is one of Ketchikan’s largest employers. These figures do not include contract workers.
- Vigor Alaska is among the five largest private sector employers in Ketchikan in terms of annual average employment and likely the largest in terms of total annual payroll.
- Average wages paid by Vigor Alaska are among the highest in the community. The average annual earnings of shipyard employees in 2015 (\$60,685) was 35 percent above the Ketchikan average of \$44,800.
- In 2015, Vigor Alaska spent \$4.9 million with more than 100 Ketchikan businesses and organizations. This spending represents sales opportunities for local businesses and generates jobs and income in the support sector.
- Including direct, indirect, and induced employment (the “multiplier effect”), the shipyard accounts for 270 jobs (157 direct jobs, 23 contract jobs, and 90 indirect and induced jobs) and total annual payroll of approximately \$14 million in Ketchikan.

Table ES-1. Ketchikan Shipyard Employment and Wage Impacts in Ketchikan, 2015

	Employment	Wages
Direct impacts	180	\$10.9 million
Indirect/induced impacts	90	\$3.3 million
Total impacts	270	\$14.2 million

¹ Unless otherwise noted, images in this report were provided courtesy of Vigor Alaska.

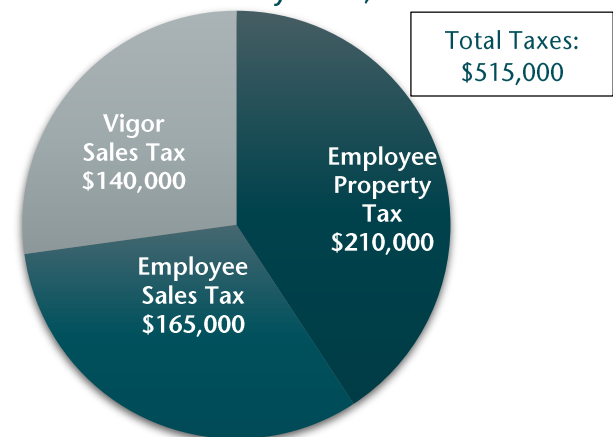
- In terms of direct employment, KSY accounted for 43 percent of all employment and 56 percent of wages in Alaska's ship and boat building sector in 2015. Statewide, 22 firms in ship and boat building reported annual average employment of 359 workers who earned \$17.5 million in total wages in 2015.

Local Government Revenue Impacts

KSY generates tax revenues for the City of Ketchikan and Ketchikan Gateway Borough governments both directly and indirectly. Shipyard employees generate tax revenue through property tax and sales tax payments. Vigor's local purchases of goods and services also generate sales tax revenue. The shipyard is also an indirect contributor to school district revenues.

- The Vigor workforce directly or indirectly accounted for approximately \$210,000 in annual property tax revenues in 2015, based on McDowell Group estimates.
- Based on household income, each Vigor household paid about \$1,100 in sales taxes in 2015, for a total of approximately \$165,000 paid by 150 shipyard-related households.
- Assuming about half of Vigor's local purchases of goods and services were subject to sales tax (some purchases are exempt and others exceed the tax cap), Vigor directly accounted for approximately \$140,000 in sales tax revenue in 2015.
- In total, approximately \$500,000 in local tax revenues are attributable to KSY. This does not include sales tax revenue resulting from local spending of indirect and induced wages.
- Shipyard employee households include approximately 34 children who attend local public schools. Those children account for \$200,000 (Base Student Allocation only) to approximately \$360,000 (full State Foundation Formula funding) in annual State of Alaska funding for K through 12 education.

Figure ES-1 Ketchikan Shipyard-Related Local Tax Payments, 2015



Other KSY-Related Economic Benefits to Ketchikan and the Region

In addition to employment, payroll, and tax impacts, the shipyard has other economic benefits for the community and the region.

- *Counter-seasonal operations:* While new-build construction activity can be an intensive year-round activity occurring over several years, most of the demand for ship repair services is in the fall, winter, and spring. Shipyard activity during these times of the year counter-balances the summer-seasonal commercial fishing, seafood processing, and tourism industries, helping create a more stable year-round economy in Ketchikan.
- *Reduced cost of marine transportation:* The presence of a competitive regional shipyard reduces the cost of marine transportation services in the region. Utilization of KSY for maintenance and repair of the Inter-

Island Ferry Authority (IFA) MV *Prince of Wales* and the Ketchikan Borough's two airport ferries, for example, reduces the cost of owning and operating that vessel. Without a local shipyard, those and other vessels would incur the expense of sailing to Puget Sound for annual upkeep and refurbishments. Lower maintenance expenses translate into lower costs for ferry system users. A regional shipyard also reduces the cost of operations for vessels not based in Southeast Alaska. Mechanical breakdown or structural failures can require immediate access to a shipyard to avoid costly delays associated with traveling to more distant shipyards.

- *Marine industry sector development:* Interconnected companies, specialized suppliers, service providers and others in a particular field form an industry sector. Ketchikan's existing maritime sector is already the heart of the local economy, including commercial fishing, seafood processing, marine transportation services, cruise/marine tourism, the Coast Guard, National Oceanic Atmospheric Administration (NOAA), and the shipyard. A competitive, fully-developed shipyard is a key component in the spectrum of services needed to build and sustain a maritime industry sector. Ketchikan's maritime sector directly accounts for a third of the local economy, and well over half of the local economy when all of the indirect and induced effects are included. Further development among the companies that provide goods and services to these sectors is an opportunity for Ketchikan.
- *Fleet recapitalization:* The average age of commercial fishing vessels longer than 58' operating in Alaska is approximately 40 years — including 143 vessels built before 1950. Many of these vessels will need to be replaced in the near future, collectively requiring billions of dollars in investment. With a full-service shipyard and a skilled workforce, Ketchikan is well positioned to benefit from increased vessel construction over the next decade.
- *Vessel homeport benefits:* Availability of local shipyard services and facilities is important when determining where to homeport a ship. Further, as operating costs rise, government and private sector vessel owners will carefully weigh the advantages of homeporting closer to service areas and fishing grounds. A fully developed shipyard in Ketchikan, coupled with its geographic advantages, positions the community well for additional homeport opportunities. Owners of vessels spend money on fuel, supplies, and various services in their homeports, and opportunities for local residents to be employed as crew are enhanced in homeport communities.
- *Away Team Capability:* To accommodate emergent ship repair demand located in Alaska locations outside of Ketchikan, Vigor has developed "away team" capabilities. Vigor's Away Team has performed major repair and refurbishment contracts in the Cook Inlet oil and gas sector, the Southeast Alaska cruise ship sector, and most recently pier-side availabilities for the US Coast Guard in Kodiak.
- *Industry support:* With the facilities and skilled workforce available at KSY, metal fabrication services can be offered to industries in Alaska not generally recognized as users of shipyard services. The welders, pipe fitters, electricians, mechanics, instrument technicians, and other shipyard employees have skills useful in the fabrication of a variety of industrial components and facilities. KSY's manufacturing capacity and workforce skills also give Ketchikan and the region the opportunity to participate in Alaska's other energy and resource development projects.

- *Reduced environmental risk:* A critically important benefit of a fully developed shipyard in Southeast Alaska relates to the reduced risk of moving disabled vessels. The environmental risks associated with moving large, damaged, or otherwise disabled vessels are significant. The longer the voyage to the nearest repair facility, the greater the likelihood that poor weather will result in further damage or even loss of the vessel and crew. For the hundreds of large vessels that move through or near Southeast Alaska waters each year, the KSY offers drydock and repair facilities that are several days (or more) closer than facilities in Vancouver, B.C. or Puget Sound.

Summary of Impacts

The following table summarizes key measurable impacts of the KSY on the Ketchikan economy in 2015.

Summary of Ketchikan Shipyard Impacts on Ketchikan, 2015

	Impacts
Direct employment	157 jobs
Direct wages	\$10 million
Average annual wages	\$60,685
Total employment (direct and indirect)	270 jobs
Total wages (direct and indirect)	\$14.2 million
Spending with local businesses	\$4.9 million
Property taxes attributable to employees	\$210,000
Sales taxes paid by employees	\$165,000
Sales taxes paid by Vigor	\$140,000
Estimated annual company and employee local charitable contributions	\$45,000



I. Introduction

Purpose and Scope

The purpose of this study is to measure the economic benefits of Ketchikan Shipyard. This study provides an analysis of the local economic impacts of the shipyard in 2015 in terms of employment, wages, local spending, and taxes. The report also includes a discussion of other local and regional benefits stemming from shipyard-related activity.

Profile of Ketchikan Shipyard

Located in Ketchikan, Alaska, Ketchikan Shipyard (KSY) is owned by the Alaska Industrial Development and Export Authority (AIDEA) and operated under contract by Vigor Alaska.

Vigor Alaska is a subsidiary of Vigor, a national provider of shipbuilding and repair services operating in 12 locations in the Pacific Northwest and Alaska (including Ketchikan and Seward).



AIDEA is a public corporation of the State of Alaska, created in 1967 by the Alaska Legislature to serve as the State of Alaska development financing authority. AIDEA's mission is to foster economic development in Alaska through various financial mechanisms, including participation in loans, bond financing, and project investment financing/ownership. AIDEA acts as a funding resource in partnership with other financial institutions, economic development groups, and guarantee agencies.

In 1997, AIDEA secured ownership of the KSY from the Alaska Department of Transportation and Public Facilities. At that time KSY consisted of minimal shore-side facilities. AIDEA's purchase was intended to enable the development of KSY as a world-class shipbuilding and marine maintenance facility, and establish the facility as an important source of local and regional economic activity. In 2005, AIDEA and the private partner operator, Alaska Ship and Drydock (ASD), enacted a 30-year operating agreement, providing the long-term commitment necessary for KSY's growth and development. Other parties to this unique public-private partnership (PPP), through a Memorandum of Understanding (MOU) with AIDEA, include the Ketchikan Gateway Borough, the City of Ketchikan and the Ketchikan Public Utilities (KPU). Vigor Industrial purchased ASD in March 2012 and in 2013 changed ASD's name to Vigor Alaska.

Unique aspects of the KSY Operating Agreement include revenue and profit sharing with AIDEA. Vigor's revenue and profit sharing payments are currently placed in an AIDEA Repair and Replacement (R&R) Fund that is used to maintain and extend the useful life of the state owned shipyard assets. Once the R&R Fund reaches a predetermined balance, AIDEA may elect to return revenues to the City and Borough of Ketchikan in consideration of financial incentives that the municipalities provide to the shipyard operator.

The shipyard sits on 25 acres and has the following assets:

- 10,000-ton 460-foot by 110-foot floating drydock (Drydock #1)
- 3,600-ton 225-foot by 85-foot floating drydock (Drydock #2)
- 130,000 square foot covered fabrication and shop area
- 70,000 square foot assembly hall
- 5-story production center
- 3 cranes, 150-ton max capacity
- 1,000 feet of pier

Approximately \$400 million in vessel construction and repair work has been completed at the shipyard over the past 20 years. Notable new build projects completed at the shipyard include:

- F/V Arctic Prowler, a 136-foot freezer longliner, the first factory longliner built in Alaska.
- M/V Susitna, a 195-foot SWATH ice breaker, variable draft (shallow-draft landing craft or deep-draft open water or icebreaking mode). Awarded in 2005, this Office of Naval Research Project created a unique opportunity for the KSY and its emerging new shipbuilding workforce. Described by Navy RADM Nevin P. Carr as, “the most complex vessel ever designed and built by the Navy,” this project demonstrated KSY’s ability to produce complex metal fabrications and assemblies of sophisticated systems and equipment with extremely high accuracy and quality.
- Chevron Legacy marine fueling station, a state-of-the-art, 116-foot by 60-foot double-hulled vessel with a deck rainwater capture system, deployed in Vancouver Harbor
- Oral Freeman airport ferry, 116-foot vehicle ferry with a beam of 48 feet (the first ship built in the KSY) and the Ken Eichner II, the sister ship to Oral Freeman, both owned and operated by the Ketchikan Gateway Borough providing access to the Ketchikan International Airport.
- Alaska Class Ferries (construction underway), two 280-foot AMHS ferries, with capacity for 53 vehicles and 300 passengers. Expected completion in the fall of 2018. A unique aspect of this project is the acquisition contract based on the Construction Manager/General Contractor (CM/GC) form of contracting. Unlike traditional low bid takes all contracts, CM/GC is a collaborative form of contract where the owner and owner’s engineer work cooperatively with the general contractor and



contractor's engineer throughout the design process identifying risks to both the construction schedule and budget, then jointly agreeing on measures to mitigate that risk. At the end of the design process, the contractor submits a Guaranteed Maximum Price for the project. If the owner finds the price fair and reasonable, then an NTP is issued and construction commences. If the owner finds the price unreasonable, the completed plans and specifications may then be put out for open,



competitive bid. CMGC contracts have a track record of keeping large, complex contracts on schedule and budget compared to traditional forms of vessel acquisition.

II. Economic Impact of the Ketchikan Shipyard

KSY's economic impact on Ketchikan includes the jobs and wages at the shipyard, the jobs and wages created by local purchases of goods and services in support of shipyard operations, and purchases by shipyard employees in support of their households. Approximately \$400 million in vessel construction and repair work has been completed at the shipyard over the past 20 years. This value includes \$115 million in wages and benefits paid to employees and \$80 million in local purchases of goods and services. Most of the balance is expenditures on materials and equipment not available locally.



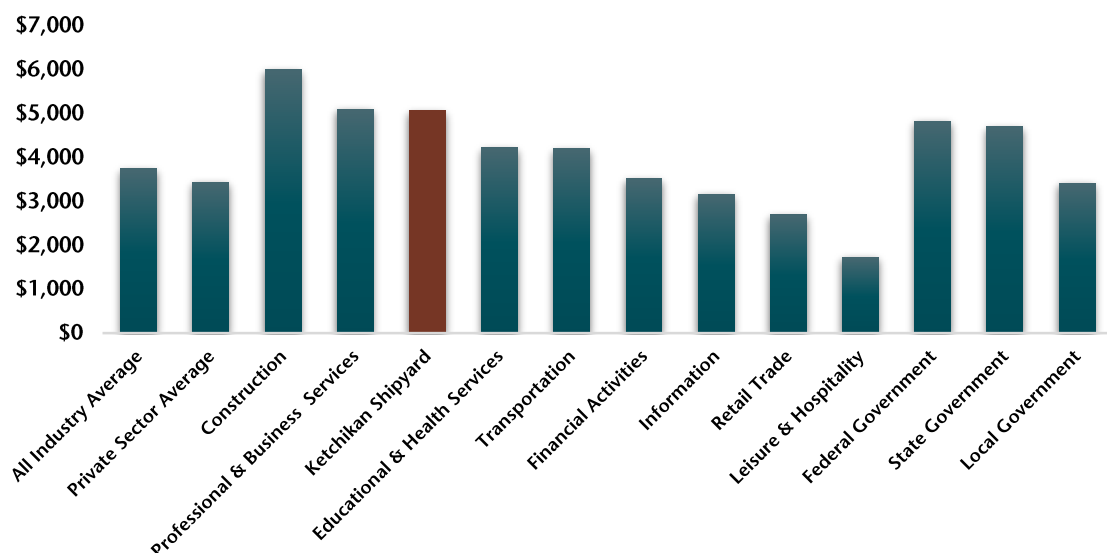
This chapter describes and quantifies KSY's economic impacts in 2015, as well other aspects of the shipyard's impact on the local economy.

Shipyard Employment and Wages

In 2015, employment at KSY averaged 157 jobs, not including contract workers. Employment was steady throughout the year, with monthly employment ranging between 143 and 165. Contract employment was more variable, ranging between 8 and 62, with an average for the year of 23.

Wages earned by Vigor employees in Ketchikan totaled \$9.5 million in 2015. Including wages and benefits, Vigor employees earned \$11.2 million in labor income in 2015. Wages earned by contract workers are estimated at a total of \$1.4 million. Wages paid by Vigor Alaska are among the highest in the community. The average annual earnings of shipyard employees in 2015 (\$60,685) was 35 percent above the Ketchikan average of \$44,800. The annual average private sector wage in Ketchikan was \$41,184, according to DOLWD data. The figure below compares average monthly wages for KSY to other sectors of the local economy.

Figure 1. Average Monthly Wages, KSY and Other Sectors of the Ketchikan Economy



While the Alaska Department of Labor and Workforce Development (DOLWD) is no longer able to provide employment data for individual businesses or organizations, the most recent available data indicates the shipyard is among the top five private sector employers in Ketchikan in terms of annual average employment, and likely the largest in terms of total annual wages.

In terms of direct employment, KSY accounted for 43 percent of all employment and 56 percent of wages in Alaska's ship and boat building sector in 2015. Statewide, 22 firms in ship and boat building reported annual average employment of 359 workers who earned \$17.5 million in total wages in 2015.

Total Employment and Wage Impacts

The shipyard accounts for additional jobs in Ketchikan's service and supply sector. The multiplier effects of shipyard operations include indirect economic impacts, which are the result of the shipyard purchasing goods and services from local businesses. In 2015, Vigor spent \$4.9 million with just over 100 Ketchikan businesses and organizations. This spending supports jobs and generates income in these businesses and organizations. Multiplier effects also include the impact of shipyard employees spending their payroll dollars with local businesses. These "induced" economic impacts affect nearly every component of the local economy, including retail establishments, restaurants, schools, and health care providers, for example.

By using economic impact modeling it is possible to accurately estimate indirect and induced employment and payroll. IMPLAN, a widely used model designed to measure the economic impact of commercial and industrial development, calculates multipliers for a broad range of industry sectors at the borough level.² Based on IMPLAN analysis of Vigor spending and wages in Ketchikan, the shipyard's employment multiplier is estimated at 1.50. That means that while the shipyard has total on-site employment of 180 (including 157 Vigor employees and an average of 23 contract employees), the total employment impact of shipyard operations is approximately 270 (180 direct jobs and 90 indirect and induced jobs). Regarding payroll, a multiplier of 1.3 is indicated. Therefore, while direct KSY payroll totals approximately \$10.9 million (Vigor and contract worker wages), the payroll impact of shipyard operations totals approximately \$14.2 million, including direct, indirect, and induced wages.

Table 1. Total Employment and Payroll Impacts of the Ketchikan Shipyard, 2015

Impact	Direct*	Indirect & Induced	Total
Employment	180 jobs	90 jobs	270 jobs
Wages	\$10.9 million	\$3.3 million	\$14.2 million

*Includes contract employees.

In 2015, Ketchikan Gateway Borough's economy included an average of 7,461 jobs and \$334 million in total annual wages, according to DOLWD data.³ The 270 jobs directly attributable to KSY account for 3.6 percent of all wage and salary employment in Ketchikan. The shipyard-related wages of \$14.2 million represented 4.3 percent of all Ketchikan wages in 2015.

² IMPLAN is a predictive input-output model of local and state economies, and is widely used to measure the economic impact of industries and industrial/commercial development.

³ <http://labor.alaska.gov/research/qcew/qcew.htm>

Local Government Revenue Impacts

While KSY property and facilities are not subject to property taxes, KSY employees generate revenue for local government through property tax and sales tax payments. Vigor's local purchases of goods and services also generates sales tax revenue for local government. The shipyard is also an indirect contributor to school district revenues, as described below.

Property Taxes

Employee survey results indicate that 27 percent of Vigor's Ketchikan workers are homeowners. Applying that percentage to the total workforce of 154 (and adjusting for households with two Vigor employees), Vigor's Ketchikan workforce includes 40 homeowners. Survey results also indicate that half of the Vigor homeowners live within City limits and half outside City limits. Property owners in Ketchikan City limits pay an 11.7 mill property tax. Based on the median value of homes owned by Vigor employees within City limits (based on survey results) of \$230,000, and a property tax rate of 11.7 mills, Vigor employees account for \$54,000 in City property tax revenues annually.



Homeowners residing outside City limits reported a median home value of \$240,000. Those homeowners pay a 5.7 mills property tax, accounting for a total of approximately \$27,000 in Ketchikan Gateway Borough property tax revenues.

Vigor employees renting within City limits reported a median monthly rent of \$1,175, while the median outside the City was \$1,354. Renters indirectly account for property tax revenues by generating rental revenue for property owners. In the short term, rental property owners would pay property taxes even without rental income, but over the long term, property values and therefore property taxes would be lower in a weakened (lower demand) rental market.

Average assessed values for rental properties, on a per housing unit basis, are typically about half the average value of a single family home. Assuming that relationship holds true for Vigor employee households, renters residing within City limits indirectly account for approximately \$108,000 in City property tax revenue, while renters outside City limits indirectly accounted for approximately \$20,000 in Borough property tax revenue.

In summary, the Vigor workforce directly or indirectly accounted for approximately \$210,000 in property tax revenues in 2015.

Sales Taxes

It is also possible to approximate sales taxes paid by Vigor and its employees. McDowell Group models of household spending in Ketchikan indicate that disposable household income in Ketchikan is equal to approximately 85 percent of gross income. Assuming Vigor employee households have total annual income

equal to the community average of \$78,169 (a conservative estimate given the relatively high wages paid by Vigor), the shipyard accounted for \$10 million in total disposable income (not counting indirect or induced effects). It is estimated that about 30 percent of disposable income was spent locally on taxable goods and services. Based on that estimate, each household paid about \$1,100 in sales taxes annually.⁴ At that average rate, 150 shipyard-related households accounted for \$165,000 in annual sales tax revenues.

Purchases of goods and services by Vigor are also subject to sales tax. It is not possible to calculate the sales tax revenue generated by Vigor's \$4.9 million in local spending in 2015. In many instances the single unit sales cap may apply. Purchases from Ketchikan Public Utilities are also exempt.⁵ Recognizing the uncertainty in the estimate, if it is assumed that half of Vigor's local purchases are subject to sales tax, those purchases would account for approximately \$140,000 in annual sales tax revenue.

School Funding

Because the shipyard does not pay property taxes (in accordance with the 2005 MOU), it does not directly contribute to local school funding. However, shipyard employees contribute through property taxes on their personal property and, for households with children in local schools, through the State of Alaska's enrollment-based Foundation Funding Formula.

The Ketchikan Gateway Borough School District reported that 2015-2016 school year enrollment included 34 children who had a parent working at the shipyard. Based on the State of Alaska's FY 2016 Base Student Allocation of \$5,880, approximately \$200,000 in base allocation funding for Ketchikan Gateway Borough School District can be attributed to the shipyard workforce.

The mechanics of the State of Alaska's education funding formula are complex, but student count is the basis for formula funding. Adjustments to the student count (2,177 students in FY2016) are made for school size, district location cost factors, career tech education factors, numbers of correspondence students, and numbers of intensive needs students. In total, for the 2015-16 school year, Ketchikan received \$10,567 per student in State funding. Based on that full amount of state support, shipyard households are connected with approximately \$360,000 in funding for the school district.

As noted above, the shipyard is not subject to property tax. However, the assessed value of the property does play a role in school funding in that its value is included in the borough's "full and true" property valuation. The mandatory local contribution is the equivalent of a 2.65 mill tax levy of the full and true value of the taxable real and personal property in the district. That amount is subtracted from the State's basic need contribution to determine net state funding. The taxable value of the shipyard, for purposes of measuring the borough's total taxable value, is the subject of ongoing discussion. However, any reasonable valuation of shipyard property places the cost to the community in terms of increased required local contribution at well below the amount of revenue brought into the district by shipyard-related enrollment.

⁴ Ketchikan Gateway Borough levies a 2.5 percent sales tax, while the City of Ketchikan levies a 4.0 percent sales tax. Therefore, sales within City limits are taxed at 6.5 percent. A weighted average tax rate of 5.7 percent is assumed for purposes of this analysis, to capture sales inside and outside City limits.

⁵ Code Chapter 4.50.230

Other Shipyard-Related Economic Benefits

While employment, payroll, and tax impacts are important aspects of the analysis of shipyard benefits, those measures do not fully capture all the economic activity and benefits that are interconnected with shipyard operations. These other benefits are described below.

Alaska Marine Highway System (AMHS) Management and Operations

The AMHS is an important source of jobs and income for Ketchikan residents. In 2014, 318 resident AMHS employees earned wages and benefits totaling \$31.5 million.⁶ Of course not all of this employment is connected to the shipyard, but in 2004, when 42 AMHS positions were moved from Juneau to Ketchikan, proximity to the shipyard was noted as a key reason for the transfers. Clearly, in the absence of the shipyard, the economic impact of AMHS in Ketchikan would be less than what it is today.

Counter-Cyclical Operations

Most of the demand for ship repair services is in the fall, winter, and spring. Shipyard activity during these times of the year counter-balances the summer-seasonal commercial fishing, seafood processing, and tourism industries, helping create a more stable year-round economy in Ketchikan.

Shipyard Customer Spending

It was previously noted that Vigor spent \$4.9 million in Ketchikan in 2015 on goods and services from local providers. In addition to that spending, shipyard customers (ship owners and crew) spend time and money in Ketchikan, purchasing lodging, food, transportation, and other goods and services. Cumulative spending by these vessel owners and crew creates employment and income opportunities in those sectors of the local economy that serve Vigor customers.



Photo courtesy of Coastwise Corporation.

Increased Homeport Potential

Availability of local shipyard services and facilities is an important consideration when determining where to homeport a vessel. The shipyard is one reason why the National Oceanic and Atmospheric Administration (NOAA) vessel *Fairweather* is homeported in Ketchikan. The *Fairweather* is a 231-foot hydrographic survey vessel with a crew of 35. It is considered one of the most technologically advanced survey vessels in the world.⁷ The vessel has been based in Ketchikan since it was reactivated in 2004. According to NOAA officials, the number of local residents working on the ship is variable, but generally ranges between five and 10. Each year the *Fairweather* locally purchases between \$100,000 and \$200,000 in fuel, and \$6,000 to \$18,000 in food.

⁶ *The Economic Impacts of the Alaska Marine Highway System*. Prepared for Alaska Marine Highway System, prepared by McDowell Group, January 2016.

⁷ <http://www.noaa.gov>

Puget Sound is clearly formidable competition for Ketchikan in the vessel homeporting market. However, Puget Sound has lost some of its appeal as a homeport. Urbanization of Seattle’s industrial waterfront has pushed property values up, created transportation problems between commercial marine centers, and resulted in a number of operational challenges for ship owners and other industrial waterfront users. As Ketchikan and regional ports identify niche markets in the Puget Sound/Alaska marine industry sector – markets where Southeast Alaska can offer cost reductions – the regional marine industry cluster will expand and attract new investment.

Fishing Fleet Replacement

Consumer demand for increased quality of seafood is one force driving demand for replacement of an aging commercial fishing fleet. Vigor has been working with Naval Architects and operators of multi-vessel fleets to identify what an ideal hull configuration would look like for fisheries showing strong demand for new vessels. Based on these discussions, Vigor is exploring development of a standardized hull design specific to high demand fisheries that could be outfitted to individual owner’s preferences for major systems and equipment, reducing the cost of new vessel acquisition. Ultimately, the economic impact of fleet replacement will total into the billions of dollars.

Reduced Environmental Risks

Though difficult to quantify, an important benefit of having a fully developed shipyard in Southeast Alaska is the reduced risk of moving disabled vessels. Whether on inside waters of Southeast Alaska or off-shore, the environmental risks associated with moving large, damaged, or otherwise disabled vessels are significant. The longer the voyage to the nearest repair facility, the greater the likelihood that poor weather will result in further damage or even loss of the vessel. For the hundreds of large vessels that move through or near Southeast Alaska waters each year, the KSY offers drydock and repair facilities that are several days (or more) closer than facilities in Vancouver, B.C. or Puget Sound.



Maritime Industry Sector Development

Economic and workforce development planners often analyze an economy in terms of geographic concentrations of interconnected companies, specialized suppliers, service providers and associations in a particular field, such as the maritime sector. Ketchikan’s maritime sector includes commercial fishing, seafood processing, mariculture, marine transportation services, cruise/marine tourism, the Coast Guard, NOAA, the shipyard, and the numerous local companies that provide goods and services to these entities. Ketchikan is emerging as Alaska’s premier maritime industrial hub as KSY approaches completion of its long-range shipyard development plan.

Ketchikan’s existing maritime sector is the heart of the local economy. Added together, jobs and income created in all the various components of Ketchikan’s maritime sector directly account for a third of the local economy, and well over half of the local economy when all of the indirect and induced effects are included.

The economic benefits of marine sector development are not confined to marine industries. Virtually every sector of the local economy is affected, through the multiplier effects described in the previous chapter. Professional services (legal, accounting, medical), other parts of the local service sector (restaurants, hotels, personal services, etc.), and all types of retail establishments, for example, gain from additional spending by the shipyard, its customers, and its employees.

Other examples of maritime sector benefits linked to the presence of a competitive regional shipyard include lower vessel maintenance and repair costs for commercial fishermen and operators of smaller cruise ships, potentially inducing more to base their operations in Ketchikan or at least have vessel repair services done locally rather than at outside shipyards. Lower costs make them more efficient and competitive in their respective industries. Similarly, the shipyard has the potential to lower costs for marine transportation providers (barge operators, passenger ferry operators, and others), who would otherwise incur the time and monetary expense of traveling to Puget Sound.

While Ketchikan's economy includes a diverse maritime sector, there is significant room for further development. For example, to provide a full range of services to its customers, KSY spends several million dollars each year purchasing from Lower 48 vendors materials and services not available locally. Specialized technical and professional services, and a variety of industrial hardware, must be purchased outside the community. This leakage represents lost opportunity for the Ketchikan economy. However, as the volume of work at KSY grows, and the shipyard achieves a greater level of sustainability, it may be possible for some of the outside businesses that serve the shipyard now to establish a permanent presence in Ketchikan, or for existing Ketchikan businesses to competitively meet more of the shipyard's service and supply needs. This additional development in Ketchikan's marine sector will occur as confidence in the sustainability of the shipyard grows.

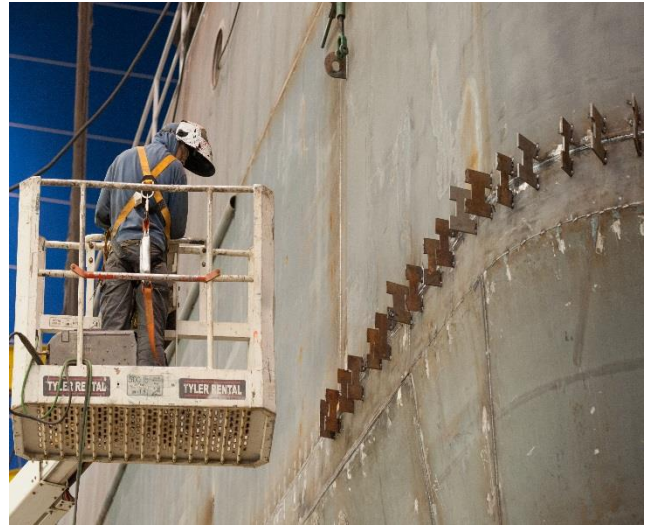
Over the long-term, Ketchikan's isolation from major marine industrial support centers may work to the community's economic advantage. US shipbuilding and repair yards are increasingly turning to contract services for marine industrial processes such as electrical, surface preparation and corrosion control. Ketchikan's lack of a regionally available, qualified marine industrial support sector requires that the shipyard operator provide a more full-service approach to vessel owners that translates into better process controls, lower costs, and increases customer satisfaction as well as reducing leakage out of the local economy.

Maritime Sector Employment Opportunities



The emergence of KSY as an economic and workforce development model sparked statewide awareness of Alaska's maritime-based industries which, when considered together, represent the state's largest source of private sector jobs. Several initiatives have focused on opportunities for business development, job creation and training in the maritime sector:

- In 2012, the Ketchikan Marine Industry Council (KMIC) was formed as an annex to the Ketchikan Chamber of Commerce to develop awareness of the community's maritime economy as a source of employment opportunities.
- In 2014 the Alaska Maritime Workforce Development Plan was one of the first public documents to recognize the statewide Maritime Industry Sector.
- In 2014, the Dept. of Commerce, Community, and Economic Development published the report titled, "Trends and Opportunities in the Maritime Support Sector".
- In 2015, a group of industry advisors to the Alaska Maritime Workforce Development Plan formed Maritime Works; an Alaska Careers Partnership.
- In 2016, Southeast Conference published the Southeast Alaska 2020 Economic Plan identifying Maritime Industrial Sector Talent Pipeline as a priority for the region.
- Ketchikan's maritime sector was recently expanded with the state's first Regional Maritime Training and Career Center, funded by a \$6.6 million US Dept. of Education grant through the University of Alaska Southeast Ketchikan Campus.



Reduced Cost of Marine Transportation; Increased Availability of Service Vessels

A competitive regional shipyard can reduce the cost of marine transportation services. Without a local shipyard, vessels such as the IFA's MV *Prince of Wales* would incur the expense of sailing to Puget Sound for necessary annual upkeep and refurbishments. Lower maintenance expenses translate into lower operating costs for ferry system users. Vessels of different sizes and characteristics (fuel consumption, crewing, sea-keeping) have different inter-port travel costs, but all can benefit from regionally located, competitive shipyard services and facilities. Further, unexpected mechanical breakdown can require immediate access to a shipyard, to avoid costly delays associated with traveling to more distant shipyards.

Manufacture of Metal Structural Components for Other Industries

With the facilities and highly skilled workforce available at the KSY, metal fabrication services can be offered to industries in Alaska not generally recognized as users of shipyard services. The welders, pipe fitters, electricians, instrument technicians, and other shipyard employees have skills useful in the fabrication of a variety of industrial components and facilities.

For example, Alaska's oil and gas industry has in the past contracted for in-state construction of large oil field module units for deployment on the North Slope. Similarly, Alaska's mining industry has contracted for in-state

construction of processing and power supply units. These multimillion-dollar fabrication projects would offer significant benefits to Ketchikan in terms of employment and income for shipyard employees.

Though activity is currently stalled by low oil prices, in the future billions of dollars may be invested in oil and gas exploration and development in Alaska's Outer Continental Shelf (OCS) areas. Alaska's off-shore, undiscovered, technically recoverable oil and gas resources have been estimated at a minimum of 27 billion barrels of oil and 132 trillion cubic feet of gas.⁸ Exploring for and potentially developing these resources will require massive investment in off-shore drilling rigs and production platforms. While it is not possible to predict what role KSY might play in supporting Alaska OCS development, the shipyard will have the necessary facilities and expertise to provide required fabrication services.

Philanthropy

The economic impact of KSY includes Vigor's philanthropy, which supports Ketchikan through its Vigor Cares program. Vigor Cares supports organizations in communities through three programs: the Employee Matching Donation Program, direct contributions from Vigor via the Community Sharing Program, and sponsored Events and Volunteer Opportunities. Since the 2012 acquisition of ASD, Inc., Vigor has contributed \$51,500 to Ketchikan non-profits who provide basic human services and help residents in need.⁹

⁸Source: <http://www.mms.gov/revaldiv/RedNatAssessment.htm>

⁹ In the following chapter, employee contributions to non-profit organizations are estimated at \$30,000 annually. Assuming company contributions average \$15,000 per year, shipyard-related contributions are estimated to total \$45,000 annually.

III. Vigor Employee Survey

A survey of Vigor Alaska's Ketchikan employees was conducted in support of the shipyard economic impact analysis. The purpose of the survey was to develop a demographic profile of shipyard workers in terms of family and housing characteristics, educational background, and contributions to local non-profit organizations. The results of the survey are summarized below. In total, 114 of the Vigor Alaska's current workforce of approximately 160 completed and returned the survey.

- The average age of surveyed employees is 40.5 years, with 22 percent aged 55 or over.
- The average length of residency in Ketchikan is just under 15 years, including more than one-third (38 percent) who have been Ketchikan residents for 20 years or more. However, one in five has been in Ketchikan less than a year, reflecting the shipyard's need to recruit outside the community to meet its recently (ACF-related) increased skilled labor needs.
- Survey results suggest that the shipyard is responsible for attracting new residents to the community. More than four in ten workers (43 percent) moved to Ketchikan to work at the shipyard.
- Employees that responded to the survey have worked at the shipyard for an average of about five years, though more than half have been employed two years or less.
- Sixty percent of shipyard employees report being married or living with a significant other/partner.

In what year were you born?

	% of Total
18 – 24	16
25 – 34	28
35 – 44	17
45 – 54	18
55+	22
Average age	40.5 years

How long have you lived in the Ketchikan Area?

	% of Total
Less than 1 year	21
1 – 2	9
3 – 4	10
5 – 9	9
10 – 19	11
20 – 29	18
30+	20
Average length of residency	14.6 years

Did you move to the Ketchikan area specifically to take a job at the shipyard?

	% of Total
Yes	43
No	57

What is your marital status?

	% of Total
Married	34
Living with a significant other or partner	26
Single/divorced/widowed	40

How many years have you worked at the shipyard?

	% of Total
Less than 1 year	31
1	11
2	10
3 – 5	21
6 – 10	12
Over 10	16
Average length of employment	4.8 years

- Shipyard employees report an average household size of 2.8 members.
- Nearly half (44 percent) of shipyard households reported having at least one member under the age of 18.
- Among households with children, about half have school agers (age 5 to 17).

How many people in your household are under 18 years of age?

	% of Total
Zero	56
1	14
2	14
3+	17
Average number of children in household	1.0 children

How many people, including yourself, live in your household for at least nine months of the year?

	% of Total
1	25
2	28
3	15
4	17
5+	16
Average household size	2.8 people

Do you have children age 5 to 17 in your household?

	% of Total
No	49
Yes	51

- Most of the shipyard workers (72 percent) that responded to the survey are currently renters. Just over one-quarter are home owners.
- Among home owners, the average estimated home value is about \$235,500.
- Renters reported average rental rates of \$1,187 per month.
- Two-thirds of employees reported living within City limits.

Can you estimate the current value of your home?

	% of Total
Under \$200,000	29
\$200,000 – \$250,000	19
Over \$250,000	35
Don't know	16
Average home value	\$235,538

Do you own or rent your current residence?

	% of Total
Own	27
Rent	72
Some other living arrangement	1

What is your monthly rent payment?

	% of Total
Under \$1,000	26
\$1,000 – \$1,250	23
\$1,251 – \$1,500	21
More than \$1,500	12
No rent	6
Don't know	12
Average rent	\$1,186.60

Do you live within Ketchikan City limits?

	% of Total
Yes, within City limits	68
No, I live elsewhere in the Ketchikan Gateway Borough	32

- Most Vigor Alaska employees have received some education or training beyond high school. More than one-third have attended college.
- Thirty percent of survey respondents attended Ketchikan High School.
- Most employees (81 percent) received Vigor Craft Training. Just over one-third reported taking classes at the University of Alaska Southeast – Ketchikan.

What is the highest level of education you have had the opportunity to complete?

	% of Total
Less than high school diploma	7
High school graduate	35
Vocational or technical training	19
Some college, no degree	20
Associate degree	6
Bachelor's degree	6
Graduate or professional degree	5

Did you attend high school in Ketchikan?

	% of Total
Yes	30
No	70

Please indicate if you received training at any of the following:

	% of Total
Alaska Construction Academy	7
University of Alaska Southeast – Ketchikan	36
Vigor Craft Training	81

- Contributions to charitable and other nonprofit organizations are one aspect of the economic activity associated with the shipyard. Shipyard employees reported an average of \$215 in cash contributions to Alaska organizations in 2015. This suggests about \$30,000 in total annual cash contributions by shipyard workers.
- More than one-quarter of employees (28 percent) reported volunteering their time for various activities. Those that volunteer their time reported an average of 117 hours of volunteer activity in 2015.
- Nine of ten shipyard employees believe the shipyard is very important to the Ketchikan economy.

Do you believe that Vigor shipyard is very important, somewhat important, or not important to Ketchikan's economy?

	% of Total
Very important	91
Somewhat important	8
Not important	--
Don't know	1

- When asked to describe the shipyard's most important local economic impact, employees most often pointed to the employment opportunities and the "living wages" offered by Vigor Alaska. However, the opportunities to gain skills and learn a trade were also frequently mentioned.