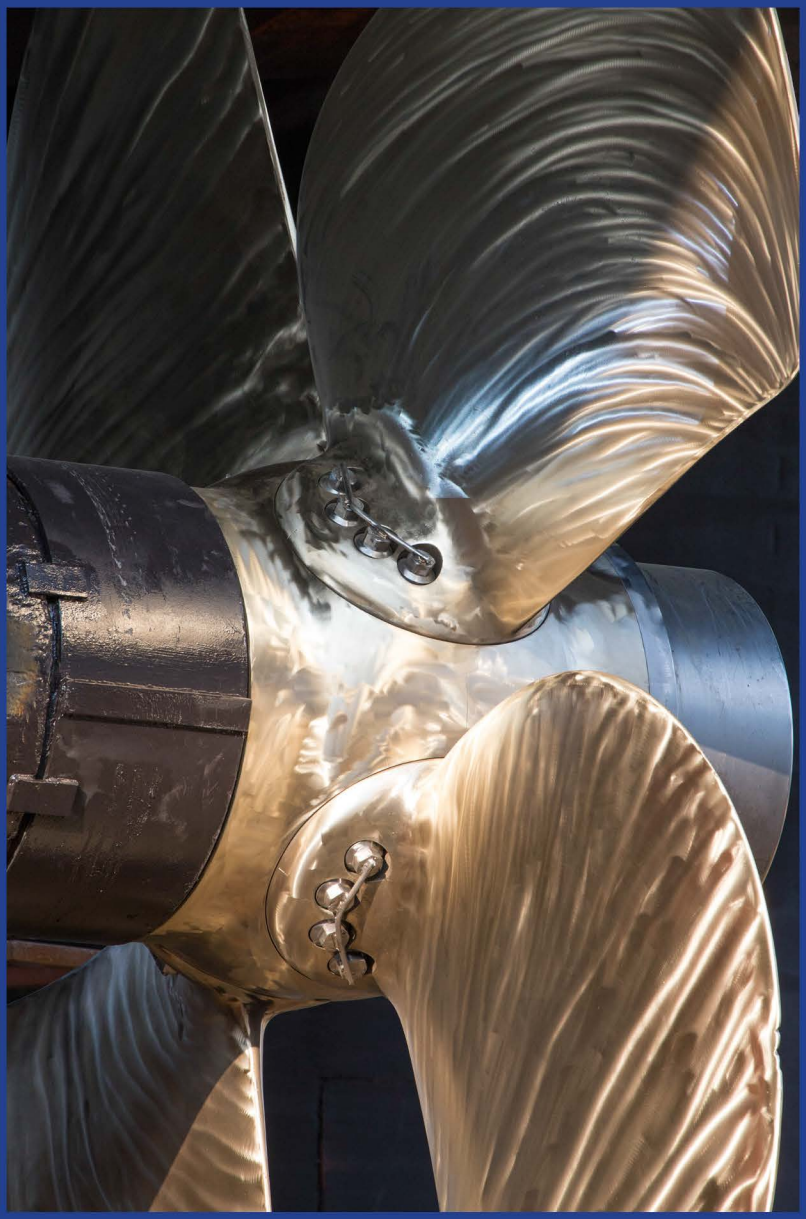
September 2014

Trends and Opportunities in the

Alaska Maritime Industrial Support Sector



PREPARED BY

McDowell GROUP

PREPARED FOR

Alaska Department of Commerce, Community & Economic Development

Division of Economic Development

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Juneau • Anchorage

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Executive Summary

The State of Alaska Division of Economic Development contracted with McDowell Group, an Alaska research firm, to assess the capacity of maritime industrial support (MIS) services in the state, understand the composition of the Alaska fleet, and make recommendations on how the MIS sector might be strengthened. This report details maritime infrastructure and MIS services available at a regional and community level and explores the Alaska fleet by homeport and type of vessel. Alaska's competitive position in the Pacific Northwest and nation is examined, and factors limiting or increasing Alaska's competitiveness are identified.

The Alaska Fleet

McDowell Group constructed a database, drawing on several sources, which includes all vessels identified as homeported in Alaska or operating in waters around Alaska. This document summarizes the "Alaska fleet" by homeport, vessel type, gross tonnage, length, age, and area of operation (for vessels 28' or greater).

- The Alaska fleet contains approximately 9,400 vessels, of which 81 percent (7,660) are homeported in Alaska. Alaska is home to several thousand smaller craft (under 28') which are not included in the vessel database.[1]

- Commercial fishing and seafood industry support vessels account for 69 percent (6,489) of the Alaska fleet, while recreational vessels account for 15 percent (1,540). The balance consists of passenger and cruise (sightseeing) vessels, oil and gas sector vessels, and vessels providing freight services.

- Over 90 percent of the Alaska fleet is less than 100' long, and 74 percent are less than 50'. In terms of overall tonnage large cruise ships and oil tankers dominate the fleet, accounting for 58 percent and 25 percent of the fleet's gross tonnage, respectively.

- Alaska's fleet contains approximately 1,750 vessels homeported outside of Alaska. Approximately 60 percent of these vessels are commercial fishing vessels homeported in Washington and Oregon.

- Most vessels operating in Alaska were built between 1970 and 1989, but the fleet contains more than 500 vessels built before 1950 and 1,300 built before 1970. A total of approximately 400 vessels exceed 60' (and were built prior to 1970).

- Approximately 4 percent (330 vessels) of the fleet was built in 2010 or later. Smaller vessels account for most of the new builds; 229 are 28' to 35'. Vessels over 100' account for a total 27 new-builds.

- Southeast Alaska, with a total of 3,221 vessels, is home to more vessels than any other region in the state. Cook Inlet has the next largest number (1,584) of Alaska based vessels, followed by Prince William Sound (958), Bristol Bay (784), and Kodiak (512). The total number of vessels active in each region may be higher as non-local vessels participate in commercial fisheries or otherwise transit local waters.

[1] Smaller vessels and skiffs were not included in the vessel database because they require relatively limited repair and maintenance services. Further, data on these vessels is incomplete.

Table ES-1. Alaska Fleet, Number of Vessels by Homeport and Type

	Commercial Fishing	Recreation	Oil & Gas	Passenger & Cruise	Tugs & Freighters	Barges	Other	Total
Alaska	**5,326**	**1,338**	**114**	**519**	**134**	**107**	**122**	**7,660**
Southeast	2,237	533	9	259	66	68	49	3,221
PWS	590	237	53	54	8	2	14	958
Cook Inlet	866	466	35	153	21	12	31	1,584
Kodiak	450	27	0	23	1	0	11	512
BSAI	297	7	1	6	16	1	11	339
Bristol Bay	761	5	0	3	6	7	2	784
Northern	95	4	16	4	6	7	2	134
Interior	30	59	0	17	10	10	2	128
Non-Alaska	**1,128**	**84**	**21**	**38**	**2**	**1**	**36**	**1,310**
Washington	886	25	3	5	2	1	18	940
Oregon	147	8	4	0	0	0	4	163
California	45	17	6	0	0	0	10	78
Other	50	34	8	33	0	0	4	129
AIS Vessels	**35**	**118**	**17**	**19**	**160**	**N/A**	**97**	**446**
Total	**6,489**	**1,540**	**152**	**576**	**296**	**108**	**255**	**9,416**

Note: Vessels with AIS (Automatic Identification System) which did not show up in other vessel databases were included in the AIS category. It is assumed they are primarily owned by nonresident parties; however, they did spend at least some time in Alaska during 2013. Source: McDowell Group Alaska Fleet Vessel Database.

- This study identified just over 1,300 vessels homeported outside Alaska but active in Alaska area waters, mainly commercial fishing vessels. This includes 940 vessels based in Washington State, 163 based in Oregon, and 207 based elsewhere.
- The Alaska fleet includes 152 vessels engaged in supporting the oil and gas industry, including 114 vessels based in Alaska.
- An additional 446 vessels listed in the Marine Exchange's Automatic Identification System (AIS) but not found in other sources of Alaska fleet information are included. These vessels are assumed to be based outside Alaska.

Maritime Industrial Support Services and Infrastructure

Alaska's maritime industrial support sector includes a diverse collection of businesses and organizations. In Alaska more than 800 firms scattered across 42 different business classifications offer services and supplies to vessel owners and operators. These firms and organizations are spread throughout coastal Alaska with the largest concentration in Southeast, Cook Inlet, and Kodiak. An interactive map displaying the following data in a finer detail can be found here.[2]

[2]http://dcced.maps.arcgis.com/apps/Compare/storytelling_compare/index.html?appid=ed6a36169cca4ecab4778a5575ee1c59

Table ES-2. Alaska MIS Services by Type and Number of Providers

MIS Service	Number of Providers	MIS Service	Number of Providers
Aluminum Fabrication	6	Marine Repair	36
Boat-building	13	Marine Safety	20
Boat Hauling and Storage	4	Marine Salvage	2
Boat Lettering & Graphics	4	Marine Shipping	6
Boat Repair	17	Marine Storage	14
Boat Storage	7	Marine Surveying	29
Boat Watch	5	Marine Towing	9
Diesel Repair/Service	32	Maritime Law	28
Diving	22	Metal Fabrication	36
Engine Services	24	Miscellaneous MIS Service	38
Equipment Sales	2	Navigation	7
Fiberglass Fabrication	13	Paint & Marine Coatings	3
Financial Services	24	Ports and Harbors	57
Fuel and Lubricants	51	Professional Services	22
Generator Sales/Service	3	Propeller Repair/Installation	8
Glasswork	6	Refrigeration	18
Hydraulics	17	Rental Services	11
Insulation Contractors	3	Sandblasting	5
Marine Communication	9	Ship Building/Repair	4
Marine Contractors	3	Shipwrights	6
Marine Electronics	55	Stevedoring	4
Marine Hardware and Supply	95	Welding	32
		Total:	**810**

Source: McDowell Group MIS Provider Database.

A spectrum of MIS capabilities exists in Alaska, with some communities offering minimal coverage while others are able to build modern vessels. McDowell Group identified 21 communities that have the ability to remove vessels from the water for repair and maintenance work and have an established MIS sector. Communities lacking developed infrastructure but with a relatively large number of MIS providers were also included.

- Approximately 100 businesses in Alaska report some involvement in boat/ship building and repair. Most boat builders in the state focus on vessels less than roughly 40'. A number of firms (~10) build aluminum driftnet boats for use in Bristol Bay and Prince William Sound.

- Alaska has 25 travel lifts in 15 different communities. Kodiak has the largest capacity travel lift with an ability to haul out vessels up to 180' long, 42' wide, and 660 tons.[3] Wrangell has the second largest lift (300 tons) that hauled its first vessel in the spring of 2014.

- Five drydocks are available in four Alaska communities (Ketchikan, Sitka, Seward, and Dutch Harbor). The largest, with a capacity of 10,000 tons, is located in Ketchikan. Sitka hosts the smallest, at 850 tons, which was built and is operated by Allen Marine.

[3] Boat hoists throughout this report are referred to as a travel lift regardless of brand.

- Ketchikan, Kodiak, Seward, Homer, Sitka, and Wrangell have the best developed MIS capacity in the state. These communities all have relatively comprehensive MIS coverage, including the ability to lift larger vessels from the water for boatyard work.

The Competitive Position of Alaska's MIS Sector

Future development of Alaska's MIS sector depends on a number of factors, but key is its competitive position relative to other MIS service centers, particularly Puget Sound.

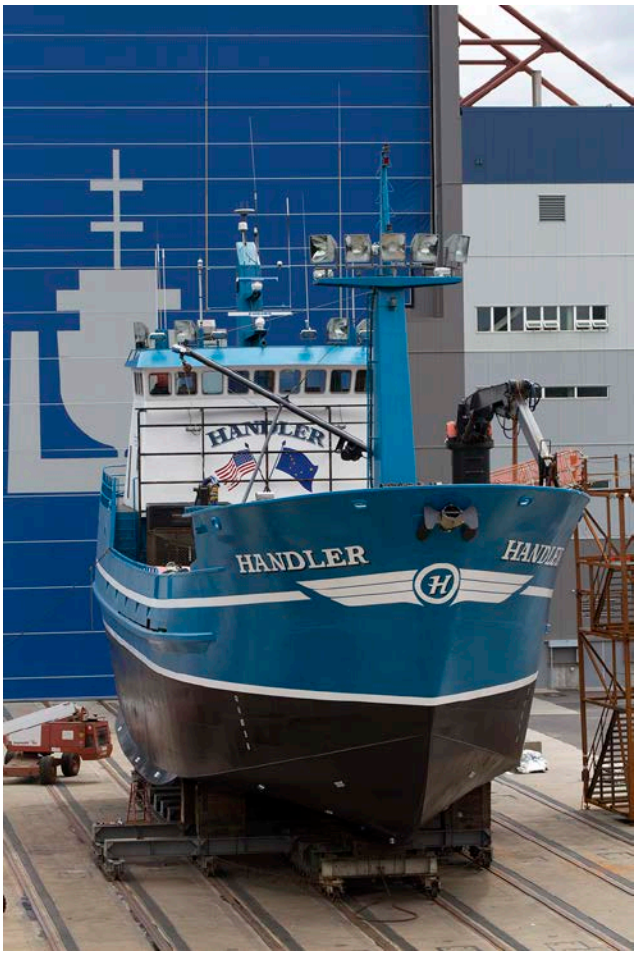
- For most ship/boat-building and major repair and maintenance work, Alaska is in competition with the highly developed Puget Sound MIS sector, which includes numerous well established shipyards, hundreds of specialized service and equipment providers, and a very large pool of skilled labor. This suggests strategic movement in niche markets is Alaska's best opportunity.

- Annual repair and maintenance (R&M) costs for the Alaska fleet are conservatively estimated to range from $5,000 for vessels 28' to $600,000 for vessels more than 200'. Based on these and similar estimates for various vessel size classes, Alaska fleet vessel owners likely spend a total of approximately $80 to $100 million on R&M per year.

- The combination of elevated labor and shipping costs often place Alaska at a competitive disadvantage with service providers in other regions. Wages paid for MIS-related skilled labor in Alaska can be 10 to 65 percent higher than a similar worker in Washington. Shipping adds 10 to 20 percent to the cost of securing boat-building and repair materials.

- A factor in favor of Alaska's competitive position is its proximity to fisheries and resource development. As fuel prices have increased, the cost for vessels operating in Alaska waters to travel south for services has risen. A round trip from Seattle to Dutch Harbor can cost more than $100,000 for larger vessels. Even the fuel cost of trips from Southeast Alaska to Puget Sound can prompt vessel owners to seek repair and maintenance services within the region.

- Another factor in favor of Alaska is growing recognition among local vessel owners that it is in their best interest to support local MIS providers. As more work is done locally (or in Alaska generally), the MIS sector has greater opportunity to expand services, support a steady labor force, provide services more competitively, and provide higher quality services. Puget Sound has benefited from



The F/V Handler leaves Ketchikan after maintenance and repairs.

this cycle over many decades, and some Alaska communities are in, or are starting, this process.

- From a national perspective, the center of shipbuilding is the Gulf Coast. Washington, Oregon and perhaps Alaska will continue to compete with other regions as growing Arctic traffic, new resource exploration, and an aging Alaska fleet present opportunities for the MIS sector.

Demand for New Construction and Major Vessel Projects

Many vessels in the fleet are nearing the end of their useful life. By 2025, the Alaska fleet will include roughly 3,100 vessels between 28' and 59' that are more than 45 years old.

Older vessels can be found across the entire spectrum of Alaska's fleet, though the majority are commercial fishing vessels. Expected vessel replacement rates for commercial fishing boats vary widely depending on the type of boat.

The Alaska fleet also includes 75 passenger vessels, tugs, and barges over 50 years old—four of these are ferries operated by the State of Alaska. Two-thirds of these older vessels have wooden hulls, while the remainder are primarily steel.

Table ES-3. Vessels 50 Years of Age or Older in the Alaska Fleet

Vessel Type	Number of Vessels	Avg. Length (ft.)
Vessels over 59' and 50 Years of Age or Older		
Commercial Fishing (Steel)	88	144
Commercial Fishing (Wood)	98	81
Recreational	13	80
Passenger	20	131
Oil & Gas	3	192
Tugs & Freighters	25	85
Barges	30	129
Other	16	124
Subtotal	**293**	**100**
Vessels 28'-59' and 50 Years of Age or Older		
Commercial Fishing (28'-35')	138	32
Commercial Fishing (36'-49')	269	42
Commercial Fishing (50'-59')	123	56
All Other Types	54	43
Subtotal	**584**	**43**

Source: McDowell Group Alaska Fleet Vessel Database.

A variety of factors are at play when vessel owners consider if and when to invest in a new or substantially renovated boat. Two important factors affecting new vessel construction are government regulation (particularly fisheries management and Coast Guard regulations) and availability of suitable financing.

- The National Marine Fisheries Service (NMFS) recently amended the Fishery Management Plan for Bering Sea/Aleutian Islands (BSAI) Groundfish to allow for replacement of certain flatfish trawlers (known as the Amendment 80 fleet). A prior amendment allowed vessel owners to form cooperatives; now the Amendment 80 fleet essentially operates under two cooperatives. Cooperatives in fisheries with catch shares allow owners better access to financing for vessel construction projects, so it is possible that demand for new flatfish trawlers could increase.

- The Longline Catcher Processor Subsector Single Cooperative Act (LLCPSSC) of 2010 effectively changed the BSAI trawl-caught Pacific cod fishery from a competitive fishery to one based on catch shares. All but a few boats are part of a cooperative, called the Alaska Longline Cod Commission (ALCC). The new structure should improve financing prospects for all vessel owners in the fishery – a timely development, considering the cooperative includes five vessels over 70 years old.

- The Coast Guard Authorization Act of 2010 could constrain construction of new fishing vessels. The act requires all fishing vessels longer than 49' to be "classed," i.e., approved by a classification society. Classification societies are non-governmental organizations that establish standards regarding how vessels for a particular application are designed, built, and operated. The Act also requires fishing vessels longer than 79' to be assigned a load line. Load lines are a standard intended to increase vessel stability. Previous to this legislation fishing vessels were largely excluded from these requirements. All vessels built after July 1st 2013 are required to meet these new regulations (though keels laid before that date fall under the previous regime). Industry contacts indicate these regulations could increase the cost of new commercial fishing vessels 10 to 30 percent, and incur ongoing operating costs associated with maintaining classification status. In the near-term this legislation may have the most impact on the Alaska salmon fleet, particularly purse seiners 50' to 58'.

- Interviews with fishing vessel owners and others indicate current lending practices are constraining the vessel construction needed to replace aging fleets, including large and small vessels. Barriers include the following:

    - **Amortization Periods** – The cash flow generated by many Alaska fisheries is not substantial enough to service the loans needed for expensive new-vessel construction over an amortization period acceptable to most private lenders. Lenders typically consider 15 years the upper limit on vessel financing, especially in the absence of a substantial balloon payment. Vessel owners often seek loan terms of 20 years or more.

    - **Interest Rates** – Many smaller vessels are financed and built at market rates of interest. For many larger vessels, for example Bering Sea/Aleutian Island (BSAI) trawler and longline vessels, advocates say below-market and government-subsidized financing, in addition to long payback periods, are needed to make needed efficiency and safety upgrades of the fleet affordable. Interest rates are highly variable based on the risk profile of the borrower, program being used, and other factors.

    - **Operating History** – Some lenders place more weight on the value of collateral, others on the borrower's historical and projected cash flow. Both can create challenges. Collateral, in the form of permits, quota, or other assets, are valued differently depending on the lender. Fishing

revenues are notoriously irregular, with profitable years followed by unprofitable ones, often in cycles, and fishing is typically a seasonal activity. Both factors tend to make fishing cash flow (whether rightfully or wrongfully) appear more risky from a banking perspective than more traditional business income.

- **Builder Risk** – In addition to the factors just mentioned, which involve the risk profile of the borrower, vessel construction carries risks associated with the builder. Specifically, does the builder have the financial and technical resources to complete the contract successfully? Builder risk adds a new source of complexity to the lender's analysis and is therefore a disincentive to providing financing or, at minimum, a source of additional cost.

Opportunities and Recommendations

Alaska's current position in the MIS sector has been driven by two primary factors. One is proximity to commercial fishing grounds. MIS services have developed gradually around the maintenance and repair needs (and limited new-build needs) of local fleets. The other factor is the public/private partnerships that have supported MIS infrastructure development, including the AIDEA-owned Ketchikan shipyard and several instances where communities have invested in haul-out capabilities, uplands development, and other facilities. Public investment in MIS infrastructure has spurred substantial economic activity in many Alaska communities. Future development of Alaska's MIS sector will require further leveraging of the state's geographic advantages and additional public investment in infrastructure.

Alaska will get the highest return from investment in the MIS sector through strategic planning. Alaska must consider how to strategically invest public resources so that Alaska ports are not competing against one another for MIS activity. Rather, Alaska's challenge is to make investments that generate the greatest return for the state's economy overall, which will include capturing more of the MIS activity that now occurs out of state and taking advantage of emerging opportunities such as replacement of aging fleets, technological innovation, and the opening of the Arctic for transportation and resource development. A long-term vision for development of Alaska's MIS sector should consider the following:

- Supporting MIS sector development in port communities that is proportionate to the size of the local fleet, or to the unique characteristics of the local fleet. Smaller communities with relatively small fleets would have modest infrastructure, with limited haul-out capacity and limited local services.

- Supporting development of one or two MIS centers in each region, where more intensive work can be conducted, including lift capacity for larger vessels, significant uplands work areas, and perhaps sheltered work areas. Kodiak, Wrangell, Homer, Cordova, and possibly Hoonah are on this track and therefore logical choices for further development.

- Enhancing Alaska's capacity to build recreational, commercial fishing, and workboats less than approximately 50'. This is an emerging part of Alaska's MIS sector, with potential for growth, and with potential for strong competitive positioning relative to Puget Sound. Boats are being constructed in Homer, Cordova, Sitka, and other communities; steps that directly or indirectly support these ventures have the potential to encourage significant year-round economic activity.

- Finally, facilities such as those in Ketchikan and Seward offer Alaska its best opportunity to take full advantage of potential opportunities for larger vessel construction/maintenance/repair projects. Competition among shipyards that build larger vessels will remain substantial, and Alaska will continue to face significant competitive disadvantages. In this regard, the State will need to work closely with Vigor, owner of Alaska's two primary shipyards, to develop a vision that blends Alaska's interests with how Vigor intends to position its Alaska assets.

As noted above, financing to construct new vessels and for major upgrades is both a barrier to replacing an aging Alaska fleet, and a potential opportunity for the State to stimulate construction activity by Alaska firms. A general finding of this report is that private lenders are motivated to work with the State to expand the scope of MIS financing available in Alaska and that the State can help by developing programs and products to address specific sources of risk in otherwise bankable deals. In most cases, rather than providing 100 percent government financing, the State can participate alongside private lenders to increase amortization terms or provide loan guarantees.

The State should consider the following related options:

- Explore the potential for an entity that would provide a secondary market for new-vessel loans similar in concept to the secondary home-mortgage market.
- Increase loan limits available through current State programs when the work is done in Alaska, for example, for the purchase of new gillnetters/skiffs, engine fuel efficiency upgrades, or substantial projects/expansions.
- Consider providing financing options such as bridge loans or lines of credit for Alaska boat builders in order to reduce builder risk and thereby make new-vessel loans more attractive to private lenders.
- Explore establishing an option within existing State loan programs to provide secondary financing for commercial fishing-related loans, perhaps making loans contingent on the work being done in Alaska.
- Encourage transactions that involve the purchase of fishery or other maritime assets by Alaska residents from non-residents.
- Continue to provide assistance to communities that wish to borrow money for maritime infrastructure through the Alaska Municipal Bond Bank Authority.

A welder in one of Alaska's fabrication shops.

Other trends and opportunities include:

- The infrastructure most often noted as lacking in Alaska MIS centers is sheltered work areas. Facilities that provide dry areas for painting, fiberglass work, and other topside tasks would create significant opportunity for further MIS development in Alaska. At this time, vessels in most communities build temporary shelters for sandblasting or painting, or otherwise conducting large projects where some shelter is required.

- Vessel replacement of aging commercial fishing vessels presents an opportunity for boat and ship builders in the United States. According to data compiled by Fishermen's News, a trade journal, an estimated 2,829 vessels in the Alaska fleet will need to be replaced at a cost of more than $14 billion.[4] At this time, the impact on Alaska builders is not well understood but it is reasonable to assume a portion of new vessels would be constructed in Alaska.

- Labor force development offers an opportunity to enhance the MIS sector in Alaska. The *Maritime Workforce Development Plan* released in May 2014, by a partnership that represents industry, State agencies, and the University of Alaska, provides a strategy to address Alaska's need for maritime-related technical skills and targets 23 high-priority occupations and occupational groups that include shipbuilding, vessel repair, and maintenance service providers. Because Alaska's local MIS sectors are small, the need for specific skills varies from community to community and warrants additional analysis in conjunction with any local business development effort.

- There may be opportunity associated with monitoring and supporting technology innovation and application in the MIS sector. For example, development and utilization of electronic monitoring systems (EMS) in commercial fisheries, and diesel engine efficiency technology development by Kodiak Electric Vessel, LLC, (with support from the Alaska Energy Authority), may present business and employment opportunities in Alaska's MIS sector related to assembly, installation, and maintenance of new marine equipment.

- There are always benefits associated with better communication and better understanding among MIS sector participants of issues, barriers, and opportunities. A particularly important issue that may warrant more attention in this regard is the Coast Guard Authorization Act. The implications of the Act are substantial for Alaska's commercial fishing industry, but understanding of the legislation is limited. More generally, a State of Alaska role sponsoring and facilitating a conference session that brings together key stakeholders to discuss potential projects and financial options, exchange other information, and identify key barriers would be beneficial.

In general, Alaska is most competitive with other regions in two main areas—the repair and maintenance of vessels less than approximately 120' and some construction of vessels less than 50'. Some communities such as Ketchikan and Seward offer capacity to maintain and even build larger vessels. Future MIS growth is possible with a measured and collaborative approach from vessel operators, MIS providers, and government agencies.

[4] http://www.fishermensnews.com/story/2014/06/01/todays-catch/value-of-the-fleet/261.html

Introduction

Alaska is defined first and foremost by its geography. With more than 33,000 miles of coastline and nearly 2,700 islands, the waters surrounding the state offer many benefits. The ocean enables transportation services, supports local economies with commercial fishing and tourism, offers future resource development, and provides a cultural identity. In recent years, nearly 10,000 vessels have been active in Alaska waters – and each vessel requires its own unique set of services.

Maritime Industrial Support (MIS) services are any services needed to support vessel ownership and operation. An MIS provider can be a public entity such as the Kodiak Harbor or a private business offering a unique service. Many firms are simply self-employed individuals practicing a skilled trade, while other MIS businesses can be large firms with hundreds of employees.

An interesting paradox exists in Alaska's MIS sector. While the state is host to many vessels, Alaska has often lacked the infrastructure, private investment, and expertise to build, maintain, or repair these vessels. Even today, nearly all vessels that operate in Alaska are built out of the state. And once built, many vessels head to shipyards in Washington periodically for maintenance and repair.

However, development of infrastructure and private investment has grown Alaska's MIS capabilities. Communities have made investments in shipyards, haul-out options, and modern harbors. MIS services have slowly increased capacity in the State and a generation of skilled MIS workers have practiced their trade.

For the foreseeable future, Alaska will continue to rely on other regions to augments its MIS needs. But opportunities exist for the state's MIS sector to grow.

Purpose and Scope

The purpose of this report is to gain understanding about the Alaska fleet, assess MIS capabilities in Alaska communities, and identify broad trends and factors impacting the Alaska MIS sector. The report culminates with a summary of potential opportunities for further development of Alaska's MIS sector and capabilities.

Sources and Methods

Interviews

McDowell Group conducted extensive interviews to gain understanding of MIS capabilities in communities and factors impacting MIS businesses. The research team conducted approximately 60 interviews with the following:

- MIS Vendors
- Harbormasters
- Vessel Operators

- City/State Officials
- Financiers
- Boat Builders
- Ship Builders
- Trade Associations
- Advocacy Groups

Vessel Data

Multiple sources were combined to form the McDowell Group Vessel Database illustrated in Chapter 1. A combination of data from public sources, data that was purchased, vessel lists from private businesses, and primary research was used.

- State of Alaska, Commercial Fisheries Entry Commission, 2014
- U.S. Coast Guard, 2014
- Marine Exchange of Alaska, 2013
- Private vessel lists, 2013
- McDowell Group research, 2014

MIS Infrastructure Data

The data presented in in Chapter 2 on MIS infrastructure came from both primary and secondary sources. Older data was updated or confirmed when conducting interviews. Sources of data included:

- Corp of Engineers Port Survey, 2010
- National Fisherman Pilothouse Guide, 2013
- Marine White Pages, 2014
- Alaska Department of Transportation, Harbor Directory, 1995
- Aleutian East Borough Harbor Chart, 2013
- Marine Exchange, 2013
- Interviews, 2014

LOOK AT THIS DATA ONLINE

Data on MIS businesses and infrastructure is displayed online in an interactive format. Click here.

MIS Provider Data

Information about specific MIS services available in Alaska communities is not easily accessible. The research team relied heavily on interviews with harbor and shipyard officials, MIS providers, and vessel operators to

establish a basic understanding of MIS availability. Trade literature, vendor lists, telephone listings, and business licenses were then examined to confirm information collected in the interviews. From this effort, a list of MIS services was constructed.

The North American Industrial Classification System (NAICS) was used to confirm these businesses were active and was examined to determine if this classification system could be used more extensively in the report. The NAICS is a taxonomy that categorizes businesses by the industry they are active in. The research team was unable to use the NAICS extensively because of two main issues: inconsistent self-reporting and the loss of information. The self-reported aspect of NAICS codes can result in businesses "incorrectly" assigning themselves a specific code. For example, one of the oldest aluminum boat builders in the state is classified under Aluminum Fabrication instead of Boat-building. From the business' perspective this is understandable—they are fabricating boats out of aluminum. But from an analysis perspective, knowing this business is manufacturing boats is of more value than knowing they fabricate aluminum. Many firms had assigned themselves NAICS codes that offered limited analytical value in this study.

Another issue the research team encountered was the fact that a number of MIS businesses can be classified in multiple categories. In many communities around the state, MIS businesses provide a variety of services and don't fit narrowly within one specific category. For example, a diesel mechanic in Kodiak may also provide welding services and rent a seine skiff to the local fleet. Placing this business into a narrow category discounts these extra services provided.

Even with these problems, NAICS codes were used when possible to confirm what was heard in interviews and other sources, and to gain a broad understanding of economic activity in Alaska communities.

Photos

The photos used in this report are from Allen Marine, Kodiak Boatyard, Vigor Industries, and personal sources.

Chapter 1: The Alaska Fleet

This chapter quantifies and describes the fleet of vessels over 28' in length that are homeported or otherwise operate in Alaska area waters. The fleet is described in terms of region of homeport, type (purpose) of vessel, size, and other characteristics. The discussion also provides commentary about how these characteristics translate to present and future MIS needs.

It is important to note that homeport location does not necessarily provide a full reflection of where a vessel operates and where it may need maintenance or repair services (many larger vessels operating in Alaska waters are homeported in Puget Sound). However, for most of the smaller vessels in the Alaska fleet, homeport provides a reasonable indication of where demand for vessel services will be concentrated.

Alaska Fleet Overview

The "Alaska" fleet consists of a broad spectrum of vessels that service the seafood, tourism, oil/gas, and transport industries.[5] The fleet is currently estimated to include about 9,400 vessels over 28' in length. Commercial fishing vessels account for 69 percent of the fleet, recreational vessels 16 percent, and passenger vessels 6 percent, while all other categories account for 9 percent of the fleet. The majority of commercial fishing and recreational vessels are less than 60'; vessels in other categories tend to be larger.

Remarkably, just 43 large cruise ships and oil tankers account for 83 percent of the Alaska fleet's total gross tonnage, a measurement based on the internal volume of a vessel. This report primarily focuses on the remaining 17 percent: vessels 28' to 200' than can be serviced (or built) in Alaska. Traditionally, vessels in the Alaska fleet larger than 200' have left the state for maintenance and repair.

This vessel inventory includes 7,660 Alaska-based vessels, 940 Washington-based vessels, and 367 vessels based in Oregon, California, or other U.S. locations. The inventory include another 446 vessels evident in the Marine Exchange's Automatic Identification System (AIS) data but not found in other sources of Alaska fleet information. It is assumed that these vessels are owned and based outside of Alaska, but spend some (or even most) of their operating time in the Alaska area.

The Alaska fleet includes 3,221 vessels based in Southeast, 42 percent of the total Alaska-based fleet. Cook Inlet has the next largest concentration of vessels, with 1,584 vessels (21 percent of the Alaska-based fleet). Prince William Sound (PWS) follows with a fleet of 958 vessels, 13 percent of the Alaska-based total.

While commercial fishing vessels account for the majority of the fleet operating in Alaska area waters, it is evident that vessels serving other purposes are an important part of the marine repair and service equation. The database includes 1,540 recreation vessels over 28' (likely an undercount), 576 vessels in Alaska's growing passengers/cruise market, and 244 vessels in the tug & barge fleet.

[5] For the purposes of this report we are limiting the "Alaska" fleet to vessels 28' or greater, with documentation, which are either owned by an Alaskan entity or believed to be operating in Alaska. This length was chosen to exclude the majority of recreational vessels and skiffs while capturing the most commercial vessels.

Table 1. Alaska Fleet, Number of Vessels by Homeport and Type

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Interior	30	59	0	17	10	10	2	128
Non-AK	**1,128**	**84**	**21**	**38**	**2**	**1**	**36**	**1,310**
Washington	886	25	3	5	2	1	18	940
Oregon	147	8	4	0	0	0	4	163
California	45	17	6	0	0	0	10	78
Other	50	34	8	33	0	0	4	129
AIS Vessels	**35**	**118**	**17**	**19**	**160**	**N/A**	**97**	**446**
Total	**6,489**	**1,540**	**152**	**576**	**296**	**108**	**255**	**9,416**

Note: Vessels with AIS which did not show up in other vessel databases were included in the AIS category. It is assumed they are primarily owned by nonresident parties; however, they did spend at least some time in Alaska during 2013.
Source: McDowell Group Alaska Fleet Vessel Database.

Most vessels operating in Alaska were built between 1970 and 1989, making them between 25 and 45 years old. A total of 1,299 vessel were built prior to 1970, and more than 500 vessels were built before 1950. Replacement of this aging fleet is an important consideration with regard to future marine support industry activity in Alaska.

The largest vessel building boom occurred between 1977 and 1980 in response to growing production from Alaska salmon hatcheries and the 1976 Magnuson-Stevens Act which eliminated competition from foreign fishing fleets by extending control of U.S. waters out to 200 miles from shore. As salmon prices peaked in the late 1980s (in real-dollar terms), another smaller building boom occurred.

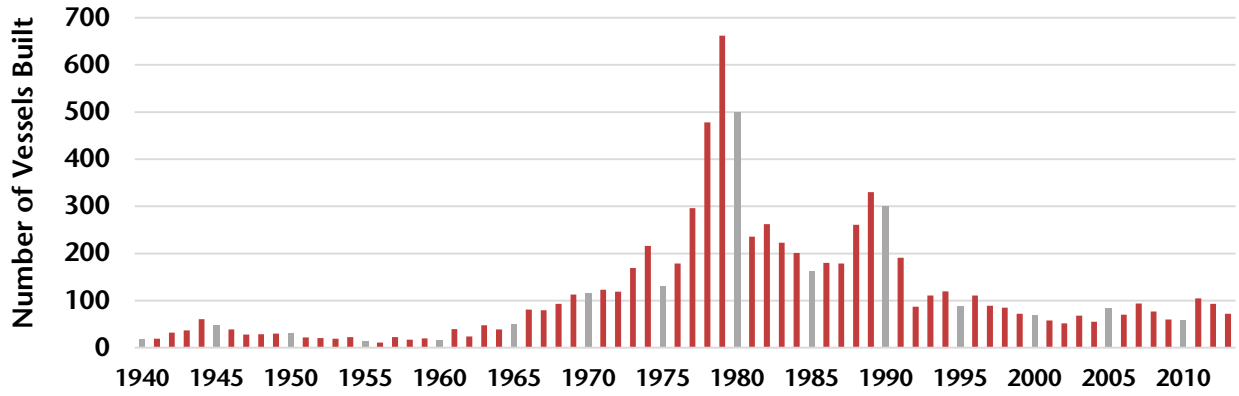
No data is available on how much is actually spent by vessel owners on annual repair and maintenance (R&M). However, annual R&M costs for the Alaska fleet are conservatively estimated to range from $5,000 for vessels 28' to $600,000 for vessels more than 200'. Based on these and similar estimates for various vessel size classes, Alaska fleet vessel owners likely spend a total of approximately $80 to $100 million on R&M per year. Alaska's competitive position in vessel R&M varies with vessel size. Larger vessels (more than 100') are likely to be sent south for major shipyard work. The typical coastal Alaska community is able to support vessels less than 50' with some communities offering more or less capability.

Table 2. Alaska Fleet, by Decade Built and Length

Decade Built	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total	Pct.
Pre-1950	54	188	71	129	63	9	**514**	**6%**
1950s	30	68	37	51	13	2	**201**	**2%**
1960s	197	156	82	73	53	23	**584**	**7%**
1970s	950	988	250	125	146	28	**2,487**	**28%**
1980s	1,383	710	223	113	88	18	**2,535**	**28%**
1990s	636	344	145	61	48	20	**1,254**	**14%**
2000s	381	168	40	48	16	35	**688**	**8%**
2010-2014	229	46	31	12	10	5	**333**	**4%**
Unknown	189	163	13	8	1	0	**374**	**4%**
Total	**4,049**	**2,831**	**892**	**620**	**438**	**140**	**8,970**	**100%-**
Pct.	**45%**	**32%**	**10%**	**7%**	**5%**	**2%**	-	-

Source: McDowell Group Alaska Fleet Vessel Database.

Figure 1. Number of Active Alaska Commercial Fishing Vessels, by Year Built, 1940-2013



Source: McDowell Group Alaska Fleet Vessel Database.

Total gross tonnage by homeport and type of vessel provides another picture of the Alaska fleet. Table 3 provides fleet characteristics by total gross tonnage, by region, by type of vessel.

Table 3. Alaska Fleet, Total Gross Tonnage by Homeport and Type

	Commercial Fishing	Recreation	Oil & Gas	Passenger & Cruise	Tugs	Barges	Other	Total
Alaska	**166,988**	**29,250**	**18,832**	**57,151**	**16,103**	**73,361**	**25,535**	**387,220**
Southeast	73,067	13,880	3,492	29,697	6,728	55,105	10,149	192,118
PWS	11,586	4,357	11,295	16,378	4,892	269	730	49,507
Cook Inlet	21,905	8,579	3,457	6,341	2,079	7,382	5,050	54,793
Kodiak	26,874	595	0	3,094	106	0	2,848	33,517
BSAI	17,093	167	332	287	714	4,238	6,066	28,897
Bristol Bay	13,084	200	0	322	559	1,597	612	16,374
Northern	2,736	51	256	539	322	915	52	4,871
Unknown/Int.	643	1,421	0	493	703	3,855	28	7,143
Non-AK	**217,801**	**1,825**	**4,927**	**1,605**	**357**	**4,452**	**75,265**	**304,163**
Washington	205,253	588	930	1,605	357	4,452	58,950	270,875
Oregon	8,902	173	0	0	0	0	3,715	12,790
California	1,301	403	1,711	0	0	0	7,895	11,310
Other	2,345	661	2,286	0	0	0	4,705	9,188
Oil Tankers (11 vessels)	-		**992,107**	-	-	-	-	**992,107**
Large Cruise Ships (30)	-	-	-	**2,354,639**	-	-	-	**2,354,639**
All Total	**384,789**	**31,075**	**1,015,866**	**2,413,395**	**16,460**	**77,813**	**100,800**	**4,038,129**

Note: Gross tonnage figures do not include data from AIS vessels.
Source: McDowell Group Alaska Fleet Vessel Database.

Southeast

Commercial fishing vessels make up half of Southeast Alaska's fleet, and account for a similar percentage of gross tonnage (not including barges). Passenger vessels and recreational vessels are the next most common vessels in Southeast. Oil/gas, tugs, barges, and other vessel types account for less than 5 percent of the region's vessels. The following sections will focus on the commercial fishing, recreation, and passenger vessels.

Table 4. Southeast Alaska Fleet Profile by Vessel Type

	Commercial Fishing	Recreation	Oil & Gas	Passenger & Cruise	Tugs	Barges	Other	Total
Vessel								
Vessel Count	2,237	533	9	259	66	68	49	3,221
Vessel Pct.	69%	17%	0%	8%	2%	2%	2%	-
Tonnage								
Gross Tonnage	73,067	13,880	3,492	29,697	6,728	55,105	10,149	192,118
GT Pct.	38%	7%	2%	15%	4%	29%	5%	-
Averages								
Avg. Age	39	32	27	23	45	48	32	37
Avg. Length	42	40	97	59	71	154	60	47
Avg. GT	33	26	388	115	102	810	207	60

Source: McDowell Group Alaska Fleet Vessel Database.

Southeast Alaska vessels tend to be older than those found in other regions, primarily because the region's fleet includes a large number of aging commercial fishing vessels. Interestingly, 10 percent of Southeast vessels were built before 1950, and 54 percent were built prior to 1980.

Table 5. Southeast Alaska, Number of Vessels by Decade Built and Length

Decade Built	28'-35'	36'-49'	50'-59'	60'-99'	100'-200'	+200'	Total	Pct.
Pre-1950	48	155	36	64	27	3	**333**	**10%**
1950	18	56	17	20	1	1	**113**	**4%**
1960	73	102	38	23	19	8	**263**	**8%**
1970	342	499	110	42	20	9	**1,022**	**32%**
1980	299	278	86	42	14	5	**724**	**22%**
1990	152	113	39	26	11	2	**343**	**11%**
2000	142	53	16	19	5	1	**236**	**7%**
2010	24	21	5	1	2	0	**53**	**2%**
Unknown	62	59	7	5	1	0	**134**	**4%**
Total	**1,160**	**1,336**	**354**	**242**	**100**	**29**	**3,221**	**100%**

Source: McDowell Group Alaska Fleet Vessel Database.

More vessels are homeported in Juneau than any other community in Southeast. However, with 45 percent of the population yet only 29 percent of the region's vessels, it is evident that MIS services are more important on a per capita basis in other Southeast communities. This is not surprising, considering these communities' generally stronger economic connection to maritime activities, and Juneau's state government-dominated economy.

Table 6. Southeast Alaska Fleet, Number of Vessels by Homeport and Length

Homeport	28'-35'	36'-49'	50'-59'	60'-99'	100'-200'	+200'	Total	Pct.
Haines	47	30	3	3	1	1	**85**	**3%**
Hoonah	27	20	3	1	0	1	**52**	**2%**
Juneau	380	378	77	67	35	5	**942**	**29%**
Ketchikan	136	189	56	54	35	14	**484**	**15%**
Petersburg	123	126	79	31	9	3	**371**	**12%**
Sitka	186	283	66	52	9	1	**597**	**19%**
Wrangell	75	88	12	17	5	1	**198**	**6%**
Other	186	222	58	17	6	3	**492**	**15%**
Total	**1,160**	**1,336**	**354**	**242**	**100**	**29**	**3,221**	**100%**

Source: McDowell Group Alaska Fleet Vessel Database.

Commercial Fishing Vessels

Southeast Alaska communities are home to 2,237 commercial fishing vessels (28' or longer). About half of all commercial fishing vessels are fiberglass, while wood is the second-most prevalent hull material. The average Southeast commercial fishing vessel is 39 years old, 33 gross tons, and is 42' long.

Table 7. Southeast Alaska Commercial Fishing Fleet Profile, by Hull Material

Hull Material	Number of Vessels	Avg. Age (yrs.)	Avg. Length (ft.)	Avg. Gross Tonnage
Aluminum	350	23	34	15
Fiberglass	1,156	34	38	28
Steel	244	37	66	87
Wood	476	65	45	30
Other/Unknown	11	39	43	31

Source: McDowell Group Alaska Fleet Vessel Database.

Most vessels homeported in Southeast are owned by Alaska residents. Vessel records indicate only 14 percent of commercial fishing vessels (and tenders) are owned by entities that reside outside the state. That figure increases to 33 percent for vessels over 58' (the maximum length for seiners).

Passenger and Small Cruise Vessels

Every summer numerous large cruise ships ply the waters of Southeast Alaska's channels and fjords. The region – home to 73,500 residents – welcomes nearly one million cruise ship visitors each year. While a highly visible part of Southeast's maritime economy, large cruise ship repair and maintenance is performed by on-board personnel, and shipyard work is typically done under contract with large yards outside of the U.S.

In contrast to large cruise vessels, Southeast shipyards and service providers receive much more business from ferries and smaller cruise/excursion vessels. The region is home to 259 passenger vessels (not including large cruise ships), of which 78 are 60' or greater. The State of Alaska owns and operates 11 ferries and homeports eight in Southeast. All but one of the State's Southeast ferries exceed 200'. Alaska ferries typically receive shipyard maintenance at Ketchikan's Vigor Shipyard or at Seward Ship's Drydock. The Prince of Wales Inter

Island Ferry Authority owns two vessels, each measuring 173'. Un-Cruise Adventures operates six smaller cruise ships and Alaskan Dream Cruises offers three vessels for Southeast tours.

Allen Marine's fleet of 26 sightseeing boats is also a major presence in Southeast's passenger fleet. Dozens of smaller companies, with boats typically less than 50', operate sightseeing tours in Southeast or rent boats to clients that want more flexibility in touring the region.

Visitors to Southeast support a large charter boat industry. Logbook data from the Alaska Department of Fish and Game shows that 341 active charter fishing businesses booked 28,287 trips in Southeast, operating a total of 610 vessels, in 2011 (the most recent data available).

Table 8. Southeast Alaska Passenger and Small Cruise Fleet Profile, by Homeport and Length

	Number of Vessels	Avg. Age (yrs.)	Avg. Length (ft.)	Avg. Gross Tonnage	Total Gross Tonnage
Hull Material					
Aluminum	123	13	46	36	**4,437**
Fiberglass	84	27	40	28	**2,352**
Steel	30	35	151	617	**18,517**
Wood	15	67	64	70	**1,055**
Other/Unknown	7	27	123	477	**3,336**
Total	**259**	**23**	**59**	**115**	**29,697**
Length					
28'-35'	92	17	31	12	**1,079**
36'-49'	71	21	41	21	**1,474**
50-59'	18	33	54	49	**878**
60'-99'	51	29	71	78	**3,996**
100'-200'	19	31	139	238	**4,526**
+200'	8	40	291	2,218	**17,744**

Source: McDowell Group Alaska Fleet Vessel Database.

Prince William Sound

Prince William Sound (PWS) is home to nearly 1,000 marine vessels over 28'. Commercial fishing vessels make up 62 percent of the PWS fleet, but only account for 23 percent of gross tonnage (not including oil tankers). Although recreational vessels are the next most common vessel type, they make up a relatively small percentage of gross tonnage. Passenger vessels (54) and oil/gas vessels (53) together make up over half of the region's gross tonnage (not including two large oil tankers).

Table 9. Prince William Sound Fleet Profile by Vessel Type

	Commercial Fishing	Recreation	Oil & Gas	Passenger & Cruise	Tugs	Barges	Other	Total
Vessel								
Vessel Count	590	237	53	54	8	2	14	958
Vessel Pct.	62%	25%	6%	6%	1%	0%	1%	-
Tonnage								
Gross Tonnage	11,586	4,357	11,295	16,378	4,892	269	730	49,507
GT Pct.	23%	9%	23%	33%	10%	1%	1%	-
Averages								
Avg. Age	23	24	21	27	31	37	32	23
Avg. Length	36	37	50	58	119	97	55	40
Avg. GT	20	18	213	303	612	135	52	52

Note: Two large oil tankers have been excluded as outliers.
Source: McDowell Group Alaska Fleet Vessel Database.

PWS commercial fishing vessels tend to be smaller, lighter, and newer than those found in most other Alaska regions. The vast majority of recent new builds have been aluminum or fiberglass gillnetters; both types are built in PWS or Cook Inlet.

Table 10. Prince William Sound Fleet, Number of Vessels by Decade Built and Length

Decade Built	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total	Pct.
Pre-1950	0	2	2	3	1	0	**8**	**1%**
1950	1	3	4	5	0	1	**14**	**1%**
1960	3	14	4	3	2	0	**26**	**3%**
1970	35	64	19	7	1	1	**127**	**13%**
1980	159	73	23	6	0	0	**261**	**27%**
1990	112	76	22	2	4	1	**217**	**23%**
2000	105	16	1	2	3	2	**129**	**13%**
2010	91	5	5	1	0	0	**102**	**11%**
Unknown	44	28	2	0	0	0	**74**	**8%**
Total	**550**	**281**	**82**	**29**	**11**	**5**	**958**	

Source: McDowell Group Alaska Fleet Vessel Database.

Most PWS vessels are homeported in Cordova and tend to be commercial gillnetters or seiners. Valdez and Whittier are popular homeports for recreational vessels owned by Anchorage and Fairbanks residents (in addition to local residents), as well as charter and tour vessels. The trans-Alaska oil pipeline terminates in Valdez and is supported by 53 different vessels.

Table 11. Prince William Sound Fleet, Number of Vessels by Homeport and Length

Homeport	28'-35'	36'-49'	50'-59'	60'-99'	100'-200'	+200'	Total	Pct.
Cordova	381	67	48	15	1	2	**514**	**54%**
Valdez	67	134	22	7	8	3	**241**	**25%**
Whittier	82	71	10	4	2	0	**169**	**18%**
Other	20	9	2	3	0	0	**34**	**4%**
Total	**550**	**281**	**82**	**29**	**11**	**5**	**958**	**100%**

Source: McDowell Group Alaska Fleet Vessel Database.

Cook Inlet

Cook Inlet is home to approximately 1,600 marine vessels over 28'. Commercial fishing vessels make up the majority of vessels and account for a higher gross tonnage than any other category. Recreational vessels make up the second largest category, both in terms of vessel count and gross tonnage. The average Cook Inlet vessel is 41' long, 35 gross tons, and 29 years old.

Table 12. Cook Inlet Fleet Profile by Vessel Type

	Commercial Fishing	Recreation	Oil & Gas	Passenger & Cruise	Tugs	Barges	Other	Total
Vessel								
Vessel Count	866	466	35	153	21	12	31	1,584
Vessel Pct.	55%	29%	2%	10%	1%	1%	2%	-
Tonnage								
Gross Tonnage	21,905	8,579	3,457	6,341	2,079	7,382	5,050	54,793
GT Pct.	40%	17%	7%	13%	4%	15%	10%	-
Average								
Avg. Age	31	25	16	26	26	32	27	29
Avg. Length	39	37	59	46	75	139	64	41
Avg. GT	25	18	99	41	99	615	163	35

Source: McDowell Group Alaska Fleet Vessel Database.

Slightly over half of Cook Inlet's vessels were built in the 1970s and 1980s, which is similar to the entire Alaska fleet. However, Cook Inlet does host a larger number of vessels built after 1990. In terms of length, while the region is home to 129 vessels 50' or greater, 86 percent of Cook Inlet vessels are shorter than 50'.

Table 13. Cook Inlet, Number of Vessels by Decade Built and Length

Decade Built	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total	Pct.
Pre-1950	0	6	1	10	2	0	**19**	**1%**
1950	5	0	1	10	3	0	**19**	**1%**
1960	68	16	2	8	5	0	**99**	**6%**
1970	174	174	20	13	11	0	**392**	**25%**
1980	213	183	29	14	6	1	**446**	**28%**
1990	102	76	25	20	4	0	**227**	**14%**
2000	80	73	7	10	0	0	**170**	**11%**
2010	60	16	3	7	3	2	**91**	**6%**
Unknown	67	51	3	0	0	0	**121**	**8%**
Total	**769**	**595**	**91**	**92**	**34**	**3**	**1,584**	**-**
Pct.	**49%**	**38%**	**6%**	**6%**	**2%**	**0%**	**-**	**-**

Source: McDowell Group Alaska Fleet Vessel Database.

Although Anchorage and Mat-Su contain much of the region's population, Homer is by far the largest port in terms of vessel counts. Homer is home to 440 commercial fishing boats, 84 recreational boats, and 54 passenger vessels (plus 19 other miscellaneous vessels). Though Seward is home to 62 commercial fishing boats, the majority of its vessels are recreational (167) and passenger vessels (61).

Table 14. Cook Inlet Fleet, Number of Vessels by Homeport and Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total	Pct.
Anchorage	121	84	17	20	11	1	**254**	**16%**
Homer	280	234	45	28	9	0	**596**	**38%**
Kenai	104	53	1	3	1	0	**162**	**10%**
Seward	114	135	20	25	5	2	**301**	**19%**
Other	150	89	8	16	8	0	**271**	**17%**
Total	**769**	**595**	**91**	**92**	**34**	**3**	**1,584**	**-**

Source: McDowell Group Alaska Fleet Vessel Database.

Kodiak

Kodiak is home to approximately 500 marine vessels over 28′. Commercial fishing vessels account for nearly 90 percent of the fleet, and 84 of the 450 commercial fishing boats are 60′ or greater. Kodiak is also home to nine passenger vessels over 50′, including the State ferry M/V Tustumena. The average Kodiak vessel is 52′ long, 65 gross tons, and 33 years old.

Table 15. Kodiak Fleet Profile by Vessel Type

	Commercial Fishing	Recreation	Oil & Gas	Passenger & Cruise	Tugs	Barges	Other	Total
Vessel								
Vessel Count	450	27	0	23	1	0	11	512
Vessel Pct.	88%	5%	0%	4%	0%	0%	2%	-
Tonnage								
Gross Tonnage	26,874	595	0	3,094	106	0	2,848	33,517
GT Pct.	80%	2%	0%	9%	0%	0%	8%	-
Averages								
Avg. Age	33	34	-	33	39	-	32	33
Avg. Length	52	39	-	57	73	-	71	52
Avg. GT	60	22	-	135	106	-	259	65

Source: McDowell Group Alaska Fleet Vessel Database.

Compared to the rest of the fleet, Kodiak boats tend to be larger and more likely to be built in the 1970s. Only 42 boats homeported in Kodiak have been built since 2000, whereas 211 were built during the 1970s.

Table 16. Kodiak Fleet, Number of Vessels by Decade Built and Length

Decade Built	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total	Pct.
Pre-1950	1	2	0	9	1	0	**13**	**3%**
1950	0	2	0	2	1	0	**5**	**1%**
1960	7	4	5	14	2	1	**33**	**6%**
1970	43	111	31	20	6	0	**211**	**41%**
1980	39	47	22	16	4	0	**128**	**25%**
1990	19	14	28	3	9	0	**73**	**14%**
2000	11	2	6	4	1	1	**25**	**5%**
2010	6	0	10	0	1	0	**17**	**3%**
Unknown	2	4	0	1	0	0	**7**	**1%**
Total	**128**	**186**	**102**	**69**	**25**	**2**	**512**	**100%**
Pct.	**25%**	**36%**	**20%**	**13%**	**5%**	**<1%**	-	-

Source: McDowell Group Alaska Fleet Vessel Database.

Slightly over half of Kodiak's fleet is comprised of relatively small fiberglass boats. These are typically seine, longline, and/or jig boats. Kodiak is home to 140 fiberglass vessels built prior to 1980 that will demand increasing R&M services in coming years.

Steel boats make up 27 percent of the fleet in terms of vessel counts, but 64 percent in terms of gross tonnage. About half of Kodiak's steel boats where built before 1980 (77 vessels).

Table 17. Kodiak Fleet, Number of Vessels by Hull Material and Length Class

Hull Material	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total	Pct.
Steel	0	13	43	54	25	1	**136**	**27%**
Fiberglass	64	153	50	1	0	0	**268**	**52%**
Wood	2	7	6	9	0	0	**24**	**5%**
Aluminum	62	13	3	4	0	0	**82**	**16%**
Other/Unknown	0	0	0	1	0	1	**2**	**0%**
Total	**128**	**186**	**102**	**69**	**25**	**2**	**512**	-

Source: McDowell Group Alaska Fleet Vessel Database.

Bering Sea, Aleutian Islands, and Alaska Peninsula (BSAI)

Commercial fishing vessels and tenders account for nearly 90 percent of the BSAI fleet. In addition to the homeport fleet, many vessels from the Pacific Northwest and other Alaska ports work in the Bering Sea. McDowell Group research indicates that roughly 500 commercial fishing vessels worked in the BSAI region during 2011.[6]

Table 18. BSAI Fleet Profile by Vessel Type

	Commercial Fishing	Recreation	Oil & Gas	Passenger & Cruise	Tugs & Freighters	Barges	Other	Total
Vessel								
Vessel Count	297	7	1	6	16	1	11	339
Vessel Pct.	88%	2%	0%	2%	5%	0%	3%	-
Tonnage								
Gross Tonnage	17,093	167	332	287	714	4,238	6,066	28,897
GT Pct.	59%	1%	1%	1%	2%	15%	21%	-
Average								
Avg. Age	33	19	24	33	17	32	44	32
Avg. Length	50	40	120	45	50	299	104	52
Avg. GT	58	24	332	48	45	4,238	551	85

Source: McDowell Group Alaska Fleet Vessel Database.

Slightly over two-thirds of BSAI's vessels were built in the 1970s and 1980s; most of the region's "non-local" fishing vessels were built during the same time period as well. BSAI actually includes fewer old boats built prior to 1970 than other regions, but the region also contains fewer "new" vessels (both local and non-local vessels).

Most offshore BSAI fisheries are managed according to catch shares where quota is tied to the vessel. Only recently have amendments been adopted allowing operators to replace old boats or allowed companies to form co-ops in some fisheries. These management changes will impact the MIS sector. Quota-based fisheries

[6] McDowell Group, Economic Value of the Alaska Seafood Industry, 2013.

may provide less incentive to replace boats than "competitive" fisheries, but make it easier to secure financing because boat owners use their quota as a collateral. Even if a vessel is physically unable to catch all the quota its owners hold, excess quota can be leased or fished by other vessels (either under contract or as part of a co-op arrangement).

Table 19. BSAI, Number of Vessels by Decade Built and Length

Decade Built	28'-35'	36'-49'	50'-59'	60'-99'	100'-200'	+200'	Total	Pct.
Pre-1950	0	0	2	0	4	1	**7**	**2%**
1950	0	0	1	1	2	0	**4**	**1%**
1960	2	2	8	5	1	1	**19**	**6%**
1970	26	60	13	4	10	0	**113**	**33%**
1980	42	51	21	2	5	1	**122**	**36%**
1990	15	12	13	1	4	0	**45**	**13%**
2000	8	10	2	2	0	0	**22**	**6%**
2010	2	0	3	0	0	0	**5**	**1%**
Unknown	1	1	0	0	0	0	**2**	**1%**
Total	**96**	**136**	**63**	**15**	**26**	**3**	**339**	**100%**
Pct.	**28%**	**40%**	**19%**	**4%**	**8%**	**1%**	-	-

Source: McDowell Group Alaska Fleet Vessel Database.

While most large boats that fish in the BSAI region use Dutch Harbor as either their homeport or a primary port of call, other outlying communities have considerable fishing fleets of their own. Seiners in Sand Point, King Cove, and Chignik tend to fish both groundfish and salmon.

Table 20. BSAI, Number of Vessels by Homeport and Length

Homeport	28'-35'	36'-49'	50'-59'	60'-99'	100'-200'	+200'	Total	Pct.
Dutch Harbor	10	10	11	7	22	3	**63**	**19%**
Chignik & C. Lagoon	2	29	14	0	1	0	**46**	**14%**
Iliamna	8	8	0	0	0	0	**16**	**5%**
King Cove	9	27	7	1	0	0	**44**	**13%**
Nelson Lagoon	11	4	1	0	0	0	**16**	**5%**
Sand Point	23	36	22	3	2	0	**86**	**25%**
St Paul	12	2	2	0	0	0	**16**	**5%**
Other	21	20	6	4	1	0	**52**	**15%**
Total	**96**	**136**	**63**	**15**	**26**	**3**	**339**	-

Source: McDowell Group Alaska Fleet Vessel Database.

Bristol Bay

Bristol Bay has 784 registered marine vessels which claim to homeport somewhere in the region. Commercial fishing vessels and cannery support boats account for all but 23 vessels (over 28') in Bristol Bay. The average Bristol Bay vessel is 34' long, 20 gross tons, and 32 years old.

Table 21. Bristol Bay Profile by Vessel Type

	Commercial Fishing	Recreation	Oil & Gas	Passenger & Cruise	Tugs & Freighters	Barges	Other	Total
Vessel								
Vessel Count	761	5	0	3	6	7	2	**784**
Vessel Pct.	97%	1%	0%	0%	1%	1%	0%	-
Tonnage								
Gross Tonnage	13,084	200	0	322	559	1,597	612	**16,374**
GT Pct.	80%	1%	0%	2%	3%	10%	4%	-
Average								
Avg. Age	31	24	0	53	32	37	46	**32**
Avg. Length	33	43	0	92	61	103	90	**35**
Avg. GT	17	40	0	107	93	228	306	**21**

Source: McDowell Group Alaska Fleet Vessel Database.

The Bristol Bay salmon fisheries contain approximately 1,500 gillnetters and 850 setnetters. Setnet vessels are not included in this vessel database because they are typically less than 28', but each setnetter has a skiff of about 18' to 26' in length.

About half of Bristol Bay's gillnet fleet officially homeports somewhere in the region, but many boats registered as homeporting elsewhere remain in the Bristol Bay region year-round. Adding these boats to the fleet increases the regional total to about 1,400 vessels (over 28').

The gillnet fleet is split about evenly between aluminum and fiberglass vessels. The average Bristol Bay gillnetter is 29 years old and 13 gross tons. Aluminum gillnetters tend to be newer than fiberglass boats (an average age of 26 years versus 31 years old). The average setnet skiff is about 24' long and 23 years old. Aluminum setnet skiffs can last for a very long time, although fishermen often replace outboard motors ahead of schedule – and keep at least one around as a spare - because they are critical to a successful season.

Table 22. Bristol Bay Gillnet and Setnet Vessel Profile

	Est. Vessel Count	Avg. Length	Avg. Gross Tons	Avg. Age	Aluminum	Fiberglass	Other/ Unknown
Gillnetters	1,488	31.0'	13.3	29	51%	47%	2%
Setnetters	847	23.6'	5.8	23	80%	16%	4%

Source: ADFG (CFEC Commercial Fishing Vessel Database), compiled by McDowell Group.

Most aluminum gillnetters were built during the 1980s and 1990s; however, there were 47 built between 2010 and 2013. The resurgence in new vessels is a by-product of more profitable fishing seasons in recent years, after only 33 vessels were built during the entire previous decade (2000-2009). Aluminum appears to be the preferred material for new builds, as it is durable and lighter than fiberglass. However, aluminum is typically more expensive, and some owners prefer the ride and comfort of a fiberglass boat.

Table 23. Bristol Bay Gillnet Fleet by Decade Built and Hull Material

Decade Built	Aluminum Vessel Count	Aluminum Pct.	Fiberglass Vessel Count	Fiberglass Pct.
Pre-1950	0	0%	0	0%
1950	1	<1%	0	0%
1960	5	1%	19	3%
1970	134	17%	217	30%
1980	346	44%	395	54%
1990	229	29%	74	10%
2000	27	3%	6	1%
2010	47	6%	19	3%
Unknown	4	1%	0	0%

Source: McDowell Group Alaska Fleet Vessel Database.

Naknek and Dillingham are home to 60 percent of the region's vessels (over 28'). Other villages like Bethel or Ugashik contain a larger percentage of skiffs, which are used for commercial fishing as well as subsistence activities. A total of six barges and other larger industrial vessels also homeport in Bethel, supporting trade and construction activities for communities located near the Kuskokwim River.

Table 24. Number of Vessels by Homeport, Bristol Bay Region

Homeport	Total	Pct.
Aleknagik	21	3%
Dillingham	189	24%
Egegik	87	11%
King Salmon	21	3%
North/South Naknek	280	36%
Togiak	58	7%
Other	128	16%

Note: Percent totals may not sum to 100% due to rounding.
Source: McDowell Group Alaska Fleet Vessel Database.

Northern Alaska

The Northern region encompasses ports from Kipnuk in western Alaska to Prudhoe Bay in the north, as well as some inland river ports. Most Northern vessels are commercial fishing boats or cannery support boats (barges, etc.); however, commercial fishing-related vessels only account for half of the region's gross vessel tonnage. River barges, landing craft, oil spill response, and regional towing vessels account for much of the remaining tonnage.

Table 25. Northern Fleet Profile by Vessel Type

	Commercial Fishing	Recreation	Oil & Gas	Passenger & Cruise	Tugs & Freighters	Barges	Other	Total
Vessel								
Vessel Count	95	4	16	4	6	7	2	**134**
Vessel Pct.	71%	3%	12%	3%	4%	5%	1%	-
Tonnage								
Gross Tonnage	2,736	51	256	539	322	915	52	**4,871**
GT Pct.	56%	1%	5%	11%	7%	19%	1%	-
Average								
Avg. Age	31	25	17	11	50	50	33	**30**
Avg. Length	38	35	43	71	65	75	47	**42**
Avg. GT	29	13	16	135	54	131	26	**36**

Source: McDowell Group Alaska Fleet Vessel Database.

Nonresident Fleet (Alaska Vessels Homeported Elsewhere)

Not surprisingly, "nonresident" vessels (which operate in Alaska but are homeported outside Alaska) tend to be larger than "resident" vessels. Nonresident vessels also tend to be slightly older. Two-thirds of the nonresident fleet are commercial fishing boats. Although these boats average 193 gross tons, they only represent 6 percent of the overall gross tonnage. Large cruise ships and oil tankers account for the majority of nonresident vessel tonnage.

Table 26. Nonresident Fleet Profile by Vessel Type

	Commercial Fishing	Recreation	Oil & Gas	Passenger & Cruise	Tugs & Freighters	Barges	Other	Total
Vessel								
Vessel Count	1,128	84	21	38	2	1	36	1,310
Vessel Pct.	86%	6%	2%	3%	0%	0%	3%	-
Tonnage								
Gross Tonnage	217,801	1,825	997,034	2,356,259	357	4,452	75,265	3,652,993
GT Pct.	6%	0%	27%	65%	0%	0%	2%	-
Average								
Avg. Age	36	29	20	16	63	51	36	35
Avg. Length	66	41	544	711	90	292	194	95
Avg. GT	193	22	47,478	62,007	179	4,452	2,091	2,789

Note: Gross tonnage, age, and length data was not available for AIS vessels, which are included in the vessel counts. These statistics have only been reported for vessel types which had mostly complete data.
Source: McDowell Group Alaska Fleet Vessel Database.

Like the resident fleet, most nonresident vessels were built in the 1970s and 1980s. Unlike the resident fleet, there are fewer "new" vessels in the nonresident fleet. Vessels built after 2000 make up 17 percent of the resident fleet but only account for 9 percent of nonresident vessels.

Table 27. Nonresident Fleet, Number of Vessels by Decade Built and Length

Decade Built	28'-35'	36'-49'	50'-59'	60'-99'	100'-200'	+200'	Total	Pct.
Pre-1950	5	19	23	38	24	5	**114**	**9%**
1950	4	6	14	5	1	0	**30**	**2%**
1960	8	12	18	13	20	13	**84**	**6%**
1970	120	67	51	35	94	18	**385**	**29%**
1980	202	64	39	28	55	11	**399**	**30%**
1990	103	31	13	6	15	17	**185**	**14%**
2000	14	8	4	5	3	30	**64**	**5%**
2010	18	2	3	1	1	3	**28**	**2%**
Unknown	5	15	0	1	0	0	**21**	**2%**
Total	**479**	**224**	**165**	**132**	**213**	**97**	**1,310**	-
Pct.	**37%**	**17%**	**13%**	**10%**	**16%**	**7%**	-	-

Source: McDowell Group Alaska Fleet Vessel Database.

AIS-Equipped Vessel Activity by Region

Data from the Marine Exchange of Alaska provides measures of AIS-equipped vessel operations within Alaska area waters. Data was collected from vessels equipped with AIS during 2013 that entered 34 different Alaska ports. This data differs from other figures presented in this section because it pertains to the place where the vessel was known to operate, for at least one day during 2013, as opposed to its homeport. Vessels equipped with AIS often operate in multiple regions throughout the year. The totals in the following table are unduplicated counts by region and vessel type.

A total of 1,332 vessels equipped with AIS entered Alaska ports in 2013. Southeast Alaska and the BSAI regions contained the most AIS-equipped vessel activity. Commercial fishing boats were the most common type of vessel but Alaska ports hosted 858 other types of vessels as well. The majority of AIS-equipped vessels are also included in our primary vessel database, but AIS data from 446 vessels indicated they entered Alaska ports even though they were not found in other vessel data sources (pertaining to Alaska vessels).

Table 28. Vessel Activity in Alaska by Region, Number of Vessels by Region and Vessel Type, 2013

	Fishing	Pleasure & Sailing	Oil & Gas	Passenger & Cruise	Tugs & Cargo	Other & Unknown	Total
Southeast	258	167	4	82	118	152	**781**
PWS	98	27	17	13	51	62	**268**
Cook Inlet	107	28	13	30	108	72	**358**
Kodiak	170	14	0	12	53	96	**345**
BSAI	291	18	4	7	122	191	**633**
Bristol Bay	64	2	0	0	24	24	**114**
Northern	3	5	2	5	28	24	**67**
Total	**474**	**199**	**35**	**106**	**251**	**267**	**1,332**

Note: Vessels operating in multiple regions are reflected in the table. The unique vessel count is in the bottom row.
Source: AIS data from Marine Exchange of Alaska, compiled by McDowell Group.

Ketchikan, Dutch Harbor, and Petersburg hosted the most AIS-equipped vessels in 2013. A total of 19 Alaska ports hosted more than 100 AIS-equipped vessels last year.

Table 29. AIS-Equipped Vessel Visits by Community, 2013

Port	Total	Port	Total
Ketchikan	635	Saint Paul	121
Dutch Harbor	476	Naknek-King Salmon	114
Petersburg	366	Whittier	85
Juneau	348	Skagway	84
Kodiak	342	Anchorage	70
Sitka	296	Nome	60
Seward	220	Kake	59
False Pass	198	Chignik	53
Wrangell	186	Haines	49
Valdez	185	Cold Bay	45
Homer	173	Metlakatla	30
King Cove	170	Old Harbor	28
Sand Point	164	Barrow	13
Hoonah	157	Prudhoe Bay	10
Akutan	152	Kotzebue	8
Yakutat	132	Kenai	6
Cordova	124	Port Lions	5

Source: AIS data from Marine Exchange of Alaska, compiled by McDowell Group.

Chapter 2: Maritime Industrial Support Services

Sector Overview

The MIS sector is defined as all enterprises, both private and public, supplying goods and services related to vessel operations, maintenance, repair, and construction. This research effort identified 810 MIS providers in 44 distinct MIS categories operating in Alaska. Identifying all MIS businesses is challenging on a number of levels: they span a broad spectrum of services, range in size from single-person operations to large corporations, are dispersed throughout the state, and include many businesses that serve marine and non-marine customers.[7] The research team conducted extensive interviews and utilized all available data to gain an understanding of community and regional MIS availability and capacity in Alaska. The following MIS categories were identified after a thorough examination of MIS firms in Alaska.

When the research team encountered a relatively large number of firms providing a specific service, a category was assigned to the group. For other MIS services that are available but specialized (e.g. trawl electronics or shaft alignment) they were placed in a broader category (e.g. marine electronics or metal fabrication).

Table 30. MIS Categories

Aluminum Fabrication	Marine Contractors	Rental Services
Boat-building	Marine Electronics	Sandblasting
Boat Hauling and Storage	Marine Hardware and Supply	Ship Building/Repair
Boat Lettering & Graphics	Marine Repair	Shipwrights
Boat Repair	Marine Safety	Stevedoring
Boat Storage	Marine Salvage	Welding
Boat Watch	Marine Shipping	Navigation
Diesel Repair/Service	Marine Storage	Paint & Marine Coatings
Diving	Marine Surveying	Ports and Harbors
Engine Services	Marine Towing	Professional Services
Equipment Sales	Maritime Law	Propeller Repair/Installation
Fiberglass Fabrication	Metal Fabrication	Refrigeration
Financial Services	Miscellaneous MIS Service	Fuel and Lubricants
Insulation Contractors	Fiberglass	Generator Sales/Service
Marine Communication	Hydraulics	

Alaska communities represent a wide range of MIS availability. Some host large fishing fleets, support resource development, and have an active tourism industry, while other areas have a small fleet and the occasional yacht that stops for provisioning. While nearly all communities along Alaska's oceans and rivers have an MIS sector, 21 communities have been identified as MIS hubs. One of the main criteria for determining if a community is an MIS hub is the ability to remove vessels from the water with the use of travel lifts, dry-docks, or hydraulic trailers. Communities limited to only topside repair and maintenance — the work that can occur without hauling out a vessel — tend to have smaller MIS capacity.

[7] http://ketchikanmarineindustry.com/wp-content/uploads/2012/02/Business-List-Report-Sept-18th-2012.pdf

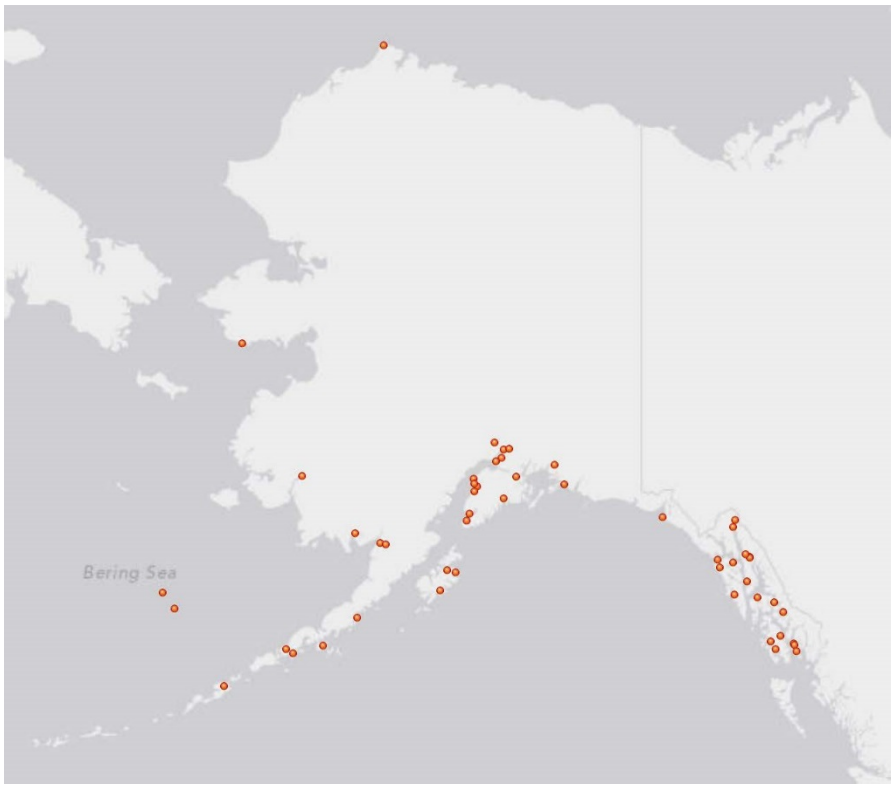
Table 31. MIS Hubs, by Region

Southeast	Cook Inlet	PWS	Kodiak	BSAI	Bristol Bay	Northern
Craig	Anchorage	Whittier	Kodiak	King Cove	Naknek/King Salmon	Nome
Haines	Homer	Cordova		Sand Point	Dillingham	
Hoonah	Seward	Valdez		Dutch Harbor		
Juneau						
Ketchikan						
Petersburg						
Sitka						
Wrangell						

For the purposes of this section, basic services are defined as any services required by a commercial fishing vessel less than 50' in the average year. These services include:

- All fuel and lubricants needed
- Steel and aluminum fabrication
- Fiberglass fabrication
- Minor marine electronic repair
- Minor engine repair and maintenance
- Hydraulics repair
- At least one marine hardware store

Figure 2. Location of MIS Providers in Alaska



MIS Services by Region

Southeast

Eight communities in Southeast are identified as MIS centers (see Table 31). Largely isolated from the road system, Southeast is heavily reliant upon the maritime industry for transportation of goods, commercial fishing, tourism, and recreation. MIS availability in the region varies from the town of Craig, with a few basic services, to Ketchikan, a community able to build relatively large, modern vessels.

Northern Southeast

The northern portion of Southeast includes the MIS centers of Juneau, Hoonah, and Haines. Each community has unique assets. Of the three, Juneau offers the broadest range of MIS services, Hoonah has the largest travel lift, and Haines has the advantage of being on the road system. Juneau has a large commercial fishing fleet, large recreational fleet, passenger vessels, and some work boats. Likely due to lack of available land and a smaller average vessel, Juneau has never developed the haul-out capabilities of other mid-sized Alaska communities. Two travel lifts are available with capacity of 35 tons, and a newer hydraulic trailer can handle 45 ton vessels. One tidal grid is available for vessels up to 70'; two of three wash-pads treat the wastewater. While most basic services are available, interviews revealed that Juneau struggles to maintain woodworking and fiberglass services. Like most communities in Alaska, specialized service providers are often flown in.

Hoonah began operating a 220-ton travel lift in 2009, one of the largest in the state. Vessels from around Southeast have been attracted to the community because of their growing capacity to deal with larger projects and cheaper dock fees than competing harbors. While some basic services are available, sandblasting, rigging, and painting are needed. As the large-capacity lift attracts more vessels and service providers, Hoonah may grow as an MIS hub, though its small population (800 residents) and limited local fleet present barriers.

Haines is one of three Southeast communities connected to the road system, but it is still dependent on its local maritime industry. The community is host to a small fishing fleet (primarily gillnetters and power trollers), some passenger vessels, and recreational boats. MIS services coverage is minimal and focused on smaller vessels. Some basic services are available, but non-recreational vessels typically go to Juneau for repair and maintenance requiring haul-out.

Table 32. Maritime Infrastructure in Northern Southeast

	Haines	Hoonah	Juneau
Travel Lift Capacity (Tons)	-	220	15, 35
Hydraulic Trailer Capacity (Tons)	40	35	45
Tidal Grid Length (Feet)	80	80	70
Tidal Grid Capacity (Tons)	50	70	-
Slips available	250	258	1,400
Wash-down Pad	Yes	Yes	Yes
Wash-down Water Treatment	Yes	Yes	Yes

Source: McDowell Group Infrastructure Database.

SOUTHERN AND CENTRAL SOUTHEAST

Boats under construction in Sitka.

This region includes Sitka, Petersburg, Wrangell, Ketchikan, and Craig. Sitka has a large commercial fishing fleet, recreational boats, passenger boats, and some work boats. Three private travel lifts operate in Sitka with two used mainly by their owner. A tidal grid is also available for vessels less than 58'. Allen Marine, a ship builder, day cruise operator, and small cruise ship operator founded in 1967, is based in Sitka and has built 51 vessels ranging from 48 to 105'. Allen Marine typically maintains a regional workforce of 350 in the summer (including workers in Sitka and Juneau) and 70 in the winter. One other shipyard in Sitka has haul-out capabilities for vessels up to 88 tons. MIS service coverage is fair to good with most basic services available. Interviews suggest Sitka is lacking marine electricians; only one is available and has a long waiting list.

Petersburg is home to a large commercial fishing fleet, recreational boats, and work boats. The community offers most basic MIS services and, like other Alaska communities, relies on other regions for specialized services. Haul-out facilities include two hydraulic trailers (30 and 50 tons) and one marine railway which can haul out vessels up to 300 tons. These two hydraulic trailers were financed through the Rural Development Initiative Fund which is administered by the Division of Economic Development (DED). Local tidal grids allow a vessel up to 85' and 200 tons to do minor hull work.

Wrangell is host to a commercial fishing fleet, recreational boats, and a small number of work boats. While MIS coverage appears to be increasing, fiberglass repair and marine electrical services were noted in interviews as difficult to obtain. Interviews indicate local MIS service providers have a good reputation, and vessel operators enjoy working in the community

> *A 98-footer from Ketchikan we recently hauled faced a $10,000 fuel bill to go to Seattle or $2,000 to come to Wrangell…They came to Wrangell.*
>
> *-Wrangell Shipyard*

In the spring of 2014, Wrangell started hauling vessels with a new 300-ton lift. The addition of this lift, the second largest in Alaska, is seen as an important step in the development of local MIS capabilities. Anecdotal reports indicate the lift has been a success in the first three months of operation. As of July 2014 there was a waiting list for the lift, and 12 vessels had been hauled. A tug from Juneau was recently hauled that maxed out the capacity of the travel lift. Previously the vessel had to go to Port Townsend or Bellingham for maintenance but was able to save $20,000 in fuel by going to Wrangell.[8]

[8] http://www.kstk.org/2014/08/01/wrangells-new-boat-lift-tests-upper-limit/

The new travel lift is used in conjunction with a smaller 150-ton lift. Two tidal grids are available with the ability to handle vessels up to 100'. Two marine railways with a capacity of 60 and 80 tons are used by a private builder for vessel repair. The main restriction facing the Wrangell facility is a lack of upland space, which has prompted city officials to consider moving to the mill site in Shoemaker Bay.

Table 33. Southern and Central Southeast Maritime Infrastructure

	Ketchikan	Petersburg	Sitka	Wrangell	Craig
Travel Lift Capacity (Tons)	50	-	60, 70, 88	150, 300	-
Hydraulic Trailer Capacity (Tons)	35	30, 50	-	40	60
Railway Capacity (Tons)	300	300	-	60, 80	-
Dry-dock Capacity (Tons)	2500, 10000	-	850	-	-
Tidal Grid Capacity (Tons)	80, 80, 65, 65, 65,65	40, 85	58	40, 100	51, 51, 51, 103
Other Haul-out Method Capacity (Tons)	-	20, 200	-	-	-
Slips available	1,020	575	1,326	660	222
Wash-down Pad	Yes	No	Yes	Yes	Yes
Wash-down Water Treatment	Yes	No	Yes	Yes	Yes

Source: McDowell Group Infrastructure Database.

Seven hundred miles north of Seattle, Ketchikan offers some of the most advanced MIS capacity in Alaska. With a shipyard mainly focused on vessels over 100', Ketchikan is positioning itself as a modern full-service maritime service center. A recent report identified 212 local MIS service businesses operating in Ketchikan.[9] While these businesses provide a high level of MIS service coverage, some specialized services (such as large propeller repair and specialized fishing equipment installation) still have to be obtained elsewhere.

The Ketchikan Shipyard recently built the largest commercial fishing vessel ever constructed in Alaska. The 136' F/V Arctic Prowler is a freezer/longliner capable of fishing 56,000 hooks per day. The yard has also built both Ketchikan Airport ferries, a fuel barge for Chevron, and an experimental high-speed landing craft with vehicle and passenger-carrying capacity. Vigor Industrial purchased the business (Alaska Ship & Drydock) that operated the AIDEA-owned shipyard in 2012 and plans to develop its MIS capacity further. The shipyard offers two drydocks, three mobile cranes, and a 70,000 sq. ft. assembly hall. Also available in Ketchikan is a 300-ton marine rail, a steel grid for large (300'-400') barges, oil/fuel treatment and recycling, more than 1,000 slips, and uplands for boat work or storage.

Located on Prince of Wales Island, Craig supports a fleet of commercial fishing, passenger, and recreational boats. The City operates a 60-ton hydraulic lift and four tidal grids: three that are 51' and one at 103'. MIS availability is limited with larger projects not taking place in Craig. Interviews indicate shipwrights and fiberglass layers are tough to find in the community.

[9] http://ketchikanmarineindustry.com/wp-content/uploads/2012/08/Business-List-Report-August-22nd-2012-DRAFT.pdf

Prince William Sound

A 24' recreation vessel leaves the Valdez Small Boat Harbor.

The communities of Cordova, Whittier, and Valdez are the centers of MIS services in Prince William Sound (PWS). Cordova has the most capacity for MIS activity, with the largest travel lift and tidal grid, the most slips, and the largest number of local vessels and MIS providers.

While local MIS services are required by recreational boats, pilot boats, passenger vessels, tenders, escort tugs, and other vessels, the region is dominated by the commercial fishing fleet. Seasonal variations in demand for MIS services are an issue for local businesses. Salmon is the region's primary fishery, and with the season lasting just the summer, demand for MIS services fluctuates drastically. Some businesses in the region simply shut down in the winter to await the spring rush from gillnetters and seiners.

The three PWS communities offer basic MIS services for vessels less than approximately 120'. Welding and metal fabrication, rigging, refrigeration, outboard and engine repair, hydraulic sales and service, marine electronics, fiberglass fabrication, and marine surveying can generally be accessed in the region. Valdez has struggled at times to provide divers, marine electronics, and refrigeration services. Because of the close proximity to Anchorage and the Kenai Peninsula, PWS often relies upon businesses in these areas to augment local MIS capabilities.

Cordova has a history of boatbuilding. Local builders focus mainly on providing gillnetters to the local fleet but have also built some non-commercial fishing vessels such as a 36' aluminum utility boat for the U.S. Forest Service.

Table 34. Prince William Sound Maritime Infrastructure

	Whittier	Cordova	Valdez
Travel Lift Capacity (Tons)	25	165	75
Hydraulic Trailer Capacity (Tons)	-	-	25
Tidal Grid Capacity (Tons)	70	160, 180	120
Other Haul-out Method Capacity (Tons)	-	250, 90	250
Slips available	450	727	511
Wash-down Pad	No	Yes	Yes
Wash-down Water Treatment	No	Yes	No

Source: McDowell Group Infrastructure Database.

Cook Inlet

Anchorage, Homer, and Seward are centers of MIS services in Cook Inlet and are distinctly unique in how they serve the maritime sector. The Port of Anchorage has minimal haul-out options but handles the majority of goods shipped to Alaska; many MIS providers are located there. Homer has a growing MIS economy, and Seward has positioned itself as one of the few locations larger vessels (more than 150') can be maintained in the state.

Table 35. Cook Inlet Maritime Infrastructure

	Anchorage	Homer	Seward
Travel Lift Capacity (Tons)	-	70	50, 250
Hydraulic Trailer Capacity (Tons)	-	20	20, 40
Railway Capacity (Tons)	-	-	-
Dry-dock Capacity (Tons)	-	-	5000
Other Haul-out Method Capacity (Tons)	-	Unknown	-
Tidal Grid Length (Feet)	-	59, 120	-
Tidal Grid Capacity (Tons)	-	50, 200	-
Slips available	-	920	668
Wash-down Pad	-	No	Yes
Wash-down Water Treatment	-	No	Yes

Source: McDowell Group Infrastructure Database.

Anchorage is home to many MIS firms that offer services all over the state. With Anchorage having a diversified economy, many businesses are able to work in multiple industries which allows for reduced seasonal fluctuations and leverages greater economies of scale. For example, a welding and diesel engine repair business can work for clients in oil and gas, mining, and heavy construction. A common practice for these firms is to have mobile capacities that allow them to either drive to communities on the road system or fly to communities in need of services. Nearly all MIS services can be found in Anchorage except haul-out facilities and highly specialized services. There are a few boat builders in the city that construct midsize recreational boats, skiffs, and gillnetters.

Homer hosts a large recreational, commercial fishing, and workboat fleet. Homer offers a wide spectrum of MIS services for vessels up to approximately 130'. Several private businesses offer haul-out options including a travel lift, hydraulic trailers, and airbags. The local harbor has tidal grids with a maximum capacity of 120' and 200 tons.

Homer has a strong heritage of aluminum and fiberglass boat-building. Some of these local builders have been active for over 30 years. Bay Weld recently constructed their 100th boat. Recent activity in the oil and gas industry has also helped support these local builders; three aluminum oil response skiffs were recently built in Homer.

Interviews with local harbor officials, boat builders, and other MIS service providers reveal there is a need for a larger travel lift and a shelter for sandblasting, painting, and other work. The current travel lift is relatively small and is only usable during certain tides. Vessels wanting to use the lift often have to wait weeks at a time before

being hauled out. The lack of a shelter for vessels to get out of the weather is problematic for vessel operators who often have to build temporary shelters around their vessels.

The ice-free harbor of Seward serves a variety of vessel types and lengths. Offering one of the largest (5,000 tons) dry-docks in the state and a 250 ton travel lift, the community has the infrastructure to support a growing MIS sector. For large vessels greater than 1,000 tons requiring a dry-dock, Seward is the only option in Alaska besides Ketchikan. Vessels tend to go to Seward instead of Ketchikan if they are operating in the northern part of the state. For example, if a 4,000-ton vessel (200' to 300') in Dutch Harbor needs to be dry-docked, Seward is the closest option.

The City of Seward has devoted considerable effort to attract Community Development Quota (CDQ) vessels to the community. Coastal Villages Regions Fund, one of the six CDQ groups, has expressed interest in shifting vessels currently home-ported in Seattle to Seward. With support from the State of Alaska, expansion efforts are underway in the local shipyard to provide the infrastructure necessary for this move. Activity in the oil and gas sector has impacted the community. Vessels from Cook Inlet only need to travel a short distance, and exploration in the Arctic has resulted in increased vessel traffic. Vigor Industrial has started playing a more central role in Seward with their recent purchase of the local shipyard.

Like other mid-sized communities in Alaska, a fair amount of MIS services are available in Seward. Depending on the project, most basic services are available locally. Seward's proximity to Anchorage allows the community to augment local MIS offerings when demand arises.

Kodiak

Kodiak is home to one of the largest commercial fishing fleets in the nation, many recreational boats, and a number of work vessels. One of the largest travel lifts on the West Coast (660 tons) operates in a local yard, and plans are underway to expand its operations. The town offers most basic services, but specialists must be flown in for certain tasks. While the local economy is reliant on commercial fishing, MIS businesses don't experience the severe seasonal fluctuations found in other communities like Cordova or Dillingham. Vessels from Kodiak fish year-round, stabilizing MIS demand. Kodiak's involvement in offshore fisheries result in a longer median vessel length than a region like PWS or Southeast. Many vessels in the 80'-140' range operate out of the port. Compared to the average Alaska community, Kodiak MIS providers are able to handle larger projects locally.

Table 36. Maritime Infrastructure in Kodiak

	Kodiak
Travel Lift Capacity (Tons)	25, 50, 100, 150, 660
Tidal Grid Length (Feet)	230
Tidal Grid Capacity (Tons)	350
Slips available	660
Wash-down Pad	Yes
Wash-down Water Treatment	Yes

Source: McDowell Group Infrastructure Database.

A recently installed travel lift hauls about 50 vessels a year, 80-90 percent of them commercial fishing vessels. The increased capacity now offers a haul-out option for vessels operating In the Gulf of Alaska, BSAI, and the Arctic. Previously, larger Kodiak boats would usually go to Puget Sound; now, many can be served locally.

With the addition of the large-capacity lift, Kodiak offers multiple travel lifts to haul vessels up to 660 tons and 180'. A tidal grid is also available with a capacity of 350 tons and 230'.

Kodiak Boatyard hauls the 440 ton F/V Saga.

Harbor officials indicate there is a need for a covered shelter and more uplands space. Vessel operators currently build one-off structures covering their vessels when a shelter is needed for painting or other work, a practice that is expensive and not generally possible for the larger vessels. The boatyard has upland room for six to eight vessels and has plans to add more space. At this time, most vessels hauled out by the larger lift are doing relatively small projects. A few bulbous bows and new decks have been installed, though local officials expressed a desire to attract larger-scale jobs such as lengthening, tophouse installation, and sponsoning.

Basic MIS services are available in Kodiak, with specialized service providers being flown in. The community is currently lacking large propeller repair. The closest facility that is capable of such repairs is on the Kenai Peninsula. As the travel lift provides more work in the community, local MIS services may increase.

> *Most boats we haul get a "shave and a haircut." They get washed, painted, and new zincs installed.*
>
> *Lon White- Kodiak Shipyard*

Bering Sea, Aleutian Islands, and Alaska Peninsula (BSAI)

The BSAI region of Alaska includes some of the most productive fisheries in the world and is a shipping thoroughfare. Dutch Harbor, King Cove, and Sand Point are the regional MIS centers.

Dutch Harbor is an international shipping port and the largest fishing port in the nation in terms of volume. A fleet of commercial fishing, response, work, and recreational vessels is homeported in Dutch Harbor, and many vessels from other regions operate from the port. MIS availability is fair to good depending on the type of project. The whole spectrum of vessels, from 21' recreation boats to 800' transoceanic freighters, may require service at the port. Consequently, MIS businesses from Anchorage, Kodiak, or Seattle often fly personnel into Dutch Harbor when local services are not available. A common practice among MIS businesses is to have an office in Dutch Harbor that is staffed intermittently – every other month, for example. Another practice, in response to the expense of transporting personnel and tools to the area, is to schedule multiple jobs in one trip.

Table 37. Maritime Infrastructure in BSAI

	King Cove	Sand Point	Unalaska/ Dutch Harbor
Travel Lift Capacity (Tons)	150	75, 150	-
Dry-dock Capacity (Tons)	-	-	1000
Tidal Grid Length (Feet)	80	60, 150	-
Slips available	133	134	133
Wash-down Pad	No	Yes	No
Wash-down Water Treatment	No	No	No

Source: McDowell Group Infrastructure Database.

Dutch Harbor offers one drydock capable of hauling a 1,000-ton vessel. This appears to be the only haulout option available besides cranes that could lift smaller vessels. The City recently opened a new harbor facility that increased the number of slips available. Previous to this, larger vessels (70'-150') would tie up three deep at existing facilities- a situation that was not optimal. Once the harbor opened, nearly all the 52 available slips were filled. With more slips available for commercial fishing vessels, the hope is they will spend more time in Dutch Harbor.

Dutch Harbor has been impacted by the increasing interest in offshore oil development in the Arctic. Royal Dutch Shell's recent activities resulted in some vessel traffic. While Shell's Arctic plans are uncertain, at least one local business is attempting to increase the maritime capacity of the area, and harbor officials say they are aware they may soon have to find more room for exploration vessels.[10]

The community of King Cove hosts a commercial fishing fleet and offers some basic MIS services. The city receives a fair amount of seasonal traffic from vessels traveling through False Pass to the Bering Sea. King Cove has a 150-ton travel lift, 133 slips, and an 80' tidal grid.

Sand Point is a community similar to King Cove in terms of population and geography, but hosts a more developed MIS sector. Two travel lifts with capacities of 75 and 150 tons are available to remove vessels from the water. For minor boat work a 60' and 150' tidal grid can be used. The harbor has room for 134 vessels and has recently been attracting longer boats from other Alaska communities.

Bristol Bay

Bristol Bay is home to two main MIS centers: Naknek/King Salmon and Dillingham. The annual salmon harvest is accompanied by a flurry of activity from May into August as hundreds of gillnet boats and skiffs harvest sockeye salmon. These two communities are also shipping hubs, with the majority of goods coming through Naknek. Fuel, groceries, construction supplies, and other goods barged to Bristol Bay first arrive in these towns and are then dispersed to the 30 villages in the region. Because most of these communities are iced-in during the winter, transportation of goods takes place in the summer. Perhaps no other region in Alaska has such a seasonal fluctuation in its level of maritime activity.

Naknek/King Salmon and Dillingham are homeport to a number of drift gillnet boats and some cannery vessels. The summer brings many vessels into the area that are not homeported locally in the area but fish commercially

[10] http://www.poa.usace.army.mil/Portals/34/docs/regulatory/publicnotices/POA-2012-556.pdf

in Bristol Bay. MIS service availability is highly seasonal, ranging from good to excellent in the summer, to fair during the winter. With the majority of Bristol Bay vessels 32' in length, MIS services have the capability to deal with a vessel of that size. For the larger tenders that travel to the region, usually crab vessels over 95', MIS availability is minimal even during the summer.

Table 38. Maritime Infrastructure in Bristol Bay

	Naknek/ King Salmon	Dillingham
Travel Lift Capacity (Tons)	30	-
Hydraulic Trailer Capacity (Tons)	30	50
Other Haul-out Method Capacity (Tons)	400	-
Wash-down Pad	No	No
Wash-down Water Treatment	No	No

Source: McDowell Group Infrastructure Database.

At the end of every season the majority of Bristol Bay vessels are pulled from the water (with a large crane) to be stored on land. Other vessels are taken across Lake Illiamna and trucked to Pile Bay. Another option is to be hoisted aboard a barge and shipped out of the Bay. The newly expanded Port of Bristol Bay (located in Naknek) can handle larger barges (400'), can store dock equipment inside during winter, and has more acreage for storage. Efforts are underway to develop a small-boat harbor in the area as well.

Northern

The Northern region, stretching from Bristol Bay north to Barrow and east to the U.S./Canadian border, offers minimal MIS services and sees relatively little vessel traffic. Of the many communities scattered throughout the region, Nome offers the most local MIS capacity. Interviews indicate increased Arctic traffic is bringing more vessel traffic into Nome. City officials hope increased traffic will lead to more local MIS services.

Table 39. Maritime Infrastructure in the Northern Region

	Nome
Hydraulic Trailer Capacity (Tons)	50
Other Haul-out Method Capacity	Unknown
Wash-down Pad	No
Wash-down Water Treatment	No

Source: McDowell Group Infrastructure Database.

With the entire Northern region iced in much of the year, the annual spring break-up of ocean and river ice allows barge access to the villages in the region. The tugs and barges used in this effort are typically homeported in larger Alaska ports or even Seattle.

Chapter 3: Vessel Construction and Overhaul

As described in Chapter 1, Alaska's fleet includes a large number of aging vessels, including 500 vessels built before 1950 and more than 1,100 vessels built before 1970. Replacement of the aging commercial fishing fleet is an important issue for certain segments of the fishing industry and a potentially important issue for development of Alaska MIS sector.

Two important factors driving new vessel construction are government regulation and availability of suitable financing. Fisheries management initiatives such as limited entry and quota shares decrease some of the uncertainty inherent in seafood harvesting. Decreased uncertainty facilitates better long-term planning and encourages greater investment by fisherman. Coast Guard regulation of new vessel construction specifications, which can increase costs, is another example of government's role in affecting demand for new vessel construction.

Financing affects vessel construction and renovation in several ways. Interest rates, amortization periods, and lender requirements for collateral, operating history, financial strength, and other borrower characteristics may determine whether or not a project is feasible. While various state and federal programs are available to help meet financing demands, private institutions provide the majority of vessel financing.

Government Regulation

Limited Entry Act

In 1973 Alaska's Limited Entry Act sought to reduce overfishing by stabilizing the number of commercial vessels involved in many Alaska fisheries. The Act requires harvesters to obtain limited entry permits (LEP), of which only a limited number are issued and are classified as a use privilege.[11] Additionally, these permits cannot be used as collateral by private lenders. The Alaska Legislature recognized this may prevent fisherman from obtaining financing and established loan programs to assist resident fisherman. Interviews with commercial lenders and boat builders indicate borrowers with relatively weak balance sheets may still struggle to obtain financing even with these alternative financing options available.

Individual Fishing Quotas (IFQ)

Many Alaska fisheries have transitioned from "derby"-style management, where harvesters race each other to catch the most fish over relatively short periods, to quota-based management, where fishermen or vessels are assigned rights to harvest a specific amount of fish. Quota systems have been credited with increasing safety and improving both quality and timing of product delivered to processing facilities.

Another benefit of quota shares has been to make the future cash flow of a harvester or vessel more predictable, and therefore more bankable. In addition, federally issued quota (for example, halibut quota) may be used as collateral for private loans. Both these factors make it easier for fishermen to finance new vessels or major

[11] AS 16.43.150 (e): An entry permit constitutes a use privilege that may be modified or revoked by the legislature without compensation.

upgrades. At the same time, however, quota shares have tended to reduce the number of vessels participating in a given fishery and can lead to a consolidation of fishing rights.

DRAFT MAGNUSON STEVENS ACT REAUTHORIZATION

When the Magnuson Stevens Act (MSA) and the American Fisheries Acts (AFA) were established, quota was often allocated to a particular vessel, rather than to the operator or owner. [12] The arrangement effectively prevented owners or new entrants from bringing other vessels into a fishery. To enter or exit a fishery required purchasing or selling a boat with its attendant quota. Subsequent amendments have shifted quota (in fisheries with a quota-based system) from vessels to their owners and generally provided options for vessel replacement.

In most fisheries where quota allocations are made to certain gear types, vessels owners or the "co-ops" they belong to are free to shift licenses from vessel to vessel. The co-op arrangement is meant to maximize efficiency, leverage sales networks (in some cases), and minimize by-catch. In these fisheries, co-ops are incentivized to harvest their total quota with as few vessels as possible.

AMERICAN FISHERIES ACT

Amendment 80 to the American Fisheries Act Fishery Management Plan for BSAI groundfish was adopted by the North Pacific Fishery Management Council in 2006. It allocates several non-pollock groundfish species among trawl fishery sectors. As of 2012, 24 non-pollock vessels fished in the "Amendment 80 sector." The act specified that none of those vessels could be replaced except by another (existing) Amendment 80 vessel. This meant that even though most Amendment 80 trawlers were more than 30 years old, they could not be replaced with new vessels. The rule was subsequently challenged in court and found invalid. The American Fisheries Act (AFA) was again amended in 2012 (Amendment 97) to allow flatfish trawlers to replace their vessels, subject to certain provisions.

NMFS proposed to implement Amendment 106, which would allow owners of AFA pollock vessels operating in the BSAI management area to replace existing vessels without limitation to length, weight, or horsepower. If adopted, Amendment 106 would further expand demand for new vessels in the BSAI fisheries. The comment period for the amendment is currently open. No date for a final ruling has been established.

LONGLINE CATCHER PROCESSOR SUBSECTOR SINGLE COOPERATIVE ACT OF 2010

The Longline Catcher Processor Subsector Single Cooperative Act (LLCPSSC) of 2010 effectively changed the BSAI trawl-caught Pacific cod fishery from a competitive fishery to one based on catch shares. All but a few vessels are part of a cooperative called the Alaska Longline Cod Commission (ALCC). The group's members have a contractual agreement that allocates quota among them. Of the ALCC's 28 vessels, five are more than 70 years old. The catch shares are a new asset members can leverage to finance replacement vessels.

The quota system enables companies to show lenders they have a stable source of future income. One industry participant has estimated that the shift to quotas could create a demand for up to 20 new vessels in the next

[12] Technically, the Magnuson-Stevens Fishery Conservation and Management Act

five to 20 years, and that the cost of a major rebuild would be on the order of $50 million, while new vessel construction costs could reach $150 million.[13]

Many factors will affect decisions about when and where vessel rebuilds or new-builds will occur. Alaska is positioned to play a role; the LLCPSSC Act was likely a factor in construction of the F/V Arctic Prowler in Ketchikan.

COAST GUARD AUTHORIZATION ACT OF 2010

The Coast Guard Authorization Act of 2010 could constrain construction of new vessels because of the increased cost associated with meeting the act's requirements. For example, the act requires all fishing vessels longer than 50' to be "classed," i.e. approved by a classification society. It also requires fishing vessels longer than 79' to be assigned a load line. Previous to this legislation fishing vessels were largely excluded from these requirements.

Classification societies are non-governmental organizations that establish standards regarding how vessels for a particular application are designed, built, and operated. Load lines are one type of standard intended to increase stability of a vessel. The load line indicates the maximum amount a vessel is permitted to settle in the water. All vessels built after July 1st 2013 are required to meet these new regulations. Keels laid before that date fall under the previous regime.

Based on McDowell Group interviews with builders, fisherman, and naval architects, meeting vessel classification requirements could increase construction costs by 10 to 30 percent. After construction, the vessel must adhere to certain operating standards as well. As of August 2014, roughly a year after the July 1st threshold, keels laid before the deadline are still available for construction. Once those keels are used, all additional construction will need to comply with the new requirements.

The potential impacts of this new legislation are not yet well understood. Builders that have constructed vessels in accordance with the new rules say it has been a learning process and sometimes an expensive one. Those interviewed anticipate compliance costs will decline somewhat with experience. However, there is concern that at least some smaller builders will not have the financial strength to withstand the adjustment period.

The cost of classification will place at least some downward pressure on demand for new fishing vessels longer than 50', notably the 58' limit seiner. These vessels are active in many Alaska fisheries including salmon, cod, crab, and halibut. Some fishermen may choose to sacrifice the harvesting and sea-keeping advantages of the larger vessels in order to stay under the 50' threshold and avoid the regulation. At the same time, classed and load lined vessels will require increased inspections, which could increase demand for haul-outs and other marine services.

[13] Remarks presented to U.S. Senators Maria Cantwell of Washington and Mark Begich of Alaska by Kenny Down, President and CEO of Blue North Fisheries

Financing

Key Financing Considerations

Whether they deal in public or private financing, lenders must assess the riskiness of every potential project. Key components of risk include amortization (the duration of the loan), collateral (assets pledged to secure a loan), and operating history of the borrower (historical and projected cash flow). For construction projects, there is risk associated not only with the borrower, but with the builder as well. Finally, lenders also try to assess the implications of broad market and economic trends, though it can be difficult to interpret their implications for a particular project.

INTEREST RATES

Interest rates impact the cost of borrowing and are an important factor driving investment in new vessel construction and MIS expansion. Interest rates vary based on the risk of a project, a lender's familiarity with the sector and borrower, amount of collateral, and other factors. A common rate structure is a base rate in addition to a fixed or variable rate. Programs administered by the State of Alaska often use the Prime Rate, the rate obtained by the most creditworthy borrowers; many Federal programs use current Treasury-bill rates, the rate paid by the U.S. Government when borrowing money; and private lenders frequently use the London Interbank Offer Rate (LIBOR), the rate paid by banks borrowing from one another.

Interviews indicate, as a broad generalization, interest rates are lower as the total loan amount rises. This may be due to more lenders being interested in larger loans (greater than $5 million) which increases competition and results in lower rates. If a business is capable of handling a large loan they likely have a profile that is desirable to lenders.

Relative to previous decades, international markets have experienced low interest rates, allowing some borrowers to obtain financing. However, these rates fluctuate and could reduce MIS activity as rates increase and the cost of financing rises.

AMORTIZATION

Larger vessels are complex and expensive pieces of equipment. In many applications, especially some commercial fisheries, a vessel may take 20 or more years of operation to return the full cost of new construction. Although many vessels have working lives much longer than this, the amortization period needed to repay new-vessel financing often exceeds what commercial lenders are willing to accommodate. The situation is exacerbated by the fact that many vessels are also highly specialized, which makes them difficult to re-purpose in the event they must be repossessed and sold. This gap between the amortization period acceptable to commercial lenders, typically a maximum of 10 to 15 years, and the 20 or more years sought by vessel owners, can be a major obstacle to new-vessel construction.

The following table illustrates the impact amortization and interest rate has upon the monthly payment needed to service a loan.

Table 40. Estimated Monthly Payments for Different Loan Amounts by Term and Interest Rate

	10 Years	15 Years	20 Years
$500,000			
4%	5,062	3,698	3,029
6%	5,551	4,219	3,582
8%	6,066	4,778	4,182
$5,000,000			
4%	50,622	36,984	30,299
6%	55,510	42,192	35,821
8%	60,663	47,782	41,822
$30,000,000			
4%	303,735	221,906	181,794
6%	333,061	253,157	214,929
8%	363,982	286,695	250,932

Collateral and Operating History

In addition to the amortization period, collateral and operating history are important and complementary factors with respect to the riskiness of a loan. Lenders have different guidelines with respect to the balance of collateral and cash flow. Some weight collateral more heavily, others the reverse. Where cash flow is judged to be reasonably secure and sufficient to service the loan (for example, when long-term operating contracts are already in force), the need for collateral may be reduced from the lender's perspective. Where historical cash flow has been variable and/or future cash flow is considered uncertain (as is typical of many fisheries), lenders often require more collateral.

As discussed above, federally issued fishing quota may be used as collateral for commercial loans. For loans where neither quota or permits are available and collateral is limited mainly to the vessel itself, the percentage of construction cost a lender is willing to finance is typically limited to the resale value of that vessel, which may be significantly less than the construction cost. Further, because the value of a partially constructed vessel is especially uncertain, financial capital is especially vulnerable during the construction process, unless significant additional collateral is available.

For a person or company with little operating history, finding financing to purchase or build a vessel is especially difficult. This can be true even when the operator has been successful in other types of businesses.

Builder Risk

Most of the risks associated with vessel financing derive from the owner, the owner's business, or the nature of the vessel. Other risks, however, are associated with the builder, as the turbulent history of shipbuilding in Puget Sound demonstrates. Lockheed, Tacoma Boatbuilding, Marco, and most recently, Martinac are just a few of the well-known builders there who have faced bankruptcy or forced sale. Government contracts are

often a key source of business for those that survive, as they were for Todd Shipyards in the years before Vigor Industrial acquired the company in 2010, but government contracts are subject to political uncertainty. In Alaska, Blackfeather Boats of Juneau is an example of a builder forced to close in spite of having a strong reputation and current contracts, at least in part due to lack of access to capital during the 2008-2009 financial crisis. State loan guarantees might help to alleviate some of the risk associated with builders and thereby make private lenders more able to finance vessel construction projects.

Private-Sector Financing Sources

Private financing is available for a wide variety of maritime projects. The following describes private and public entities that act, in whole or in part, as conduits to public funding.

Alaska Commercial Fishing and Agriculture Bank

This State-established, member-owned cooperative supports Alaska agriculture, timber, commercial fishing, tourism, and other resource-based industries. Approximately 90 percent of CFAB's loan portfolio is concentrated in the commercial fishing industry. Interest rates vary depending on the borrower, and are based upon operating costs of the co-op. The majority of loans have a 10 to 15 year term with the maximum at 20 years. While CFAB can offer 100 percent financing, it tries to average 80 percent, with the remainder from other sources. The maximum loan amount is $500,000 for individuals and $1,000,000 for corporations, partnerships, and limited liability companies.

Alaska Growth Capital

Alaska Growth Capital is a lending institution formed under the Alaska Business Industrial Development Corporation (BIDCO) Act. It provides financing for all business needs including construction lending, working capital facilities, equipment purchases and leasehold improvements. It also participates in the SBA and USDA loan guarantee programs. Depending on the project, financing can be obtained in amounts ranging from $100,000 to $10 million with terms from three to 25 years.

Private Lenders

Compared to other sources of financing, private lenders typically offer the most financing in terms of amount lent and variety of financial products. These lenders often work with public financing programs as intermediaries as borrowers seek access to funding such as SBA 504, Title XI, and CFAB. Interest rates vary but are typically determined by the prevailing market rate and risk profile of the borrower. Amortization is often less than public financing.

Local Loan Funds

A variety of local economic development entities provide capital to regional businesses, typically in relatively small amounts, through revolving loan funds. The Juneau Economic Development Council and some Community Development Quota (CDQ) Groups are examples.

Federal Financing Programs

The section below provides a brief overview of the most important federal programs that provide capital for vessel construction and refitting and for marine-services businesses.

U.S. Small Business Administration (SBA) – SBA Guaranteed Loans

The SBA provides a variety of financing for new and expanding businesses by guaranteeing loans by private lenders. Approximately 150 loans per year are made in Alaska. Most MIS firms would qualify for capital and operating financing as well as some debt-consolidation financing. Fishing boats qualify in some cases, but typically must go through the National Marine Fisheries Service programs first. Loans made under the 7(a) program cannot exceed $5 million. Another option for capital expenditures is the CDC/504 program with a maximum loan amount of $5.5 million. While the SBA does not finance vessels, many small and mid-size Alaska MIS firms qualify.

U.S. Department of Agriculture – Business and Industry Guaranteed Loans

Focused on increasing employment opportunity in rural areas and cities less than 50,000 people, this program provides financing to cooperatives, businesses, Alaska Native groups, associations, and individuals. Financing can be used to preserve or expand existing businesses, to develop land, and for capital projects. Working in conjunction with a private lender, the program provides a loan guarantee up to 80 percent for loans less than $5 million, 70 percent for loans between $5 and $10 million, and 60 percent for loans above $10 million. Loans are typically less than $10 million but in certain situations the Secretary of Agriculture may approve loans up to $40 million. Loan terms range from seven to 30 years. Some seiners operating in Alaska have been guaranteed with this program.

U.S. Department of Transportation, Maritime Administration (MARAD) – Title XI Federal Ship Financing Program

The primary goal of this program is to grow and modernize American vessels and American shipyards through the provision of financing. Research vessels, ferries, container ships, tankers, tugs, barges, offshore oil rigs, oil support vessels, and floating dry-docks all qualify for financing under the Title XI program. The maximum loan term is the lesser of 25 years or the economic life of the vessel and up to 87.5 percent of the actual value of the project. Total annual loans have ranged from $23 million in FY 2010 to $1.8 billion in FY 1999. Title XI financing helped Allen Marine, Inc. in Sitka build 14 vessels worth more than $23 million in the mid-2000s. Currently, fishing vessels cannot be financed through this program.

U.S. Department ***of the Interior – Indian Loan Guarantee, Insurance, and Interest Subsidy Program***

Devoted to increasing the economic wellbeing and opportunities for American Indians and Alaska Natives, this program can be used for capital and operating expenses, refinancing, and lines of credit. Loans for an individual can be up to $500,000 with larger amounts possible in certain situations. Loan terms cannot exceed 30 years and loans are guaranteed up to 90 percent. The borrower must be a federally recognized American Indian or Alaska Native individual, group, or business with no less than 51 percent ownership by American Indians or Alaska Natives.

U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration (NOAA) – Fisheries Finance Program

The main source of federal financing for larger fishing vessels is the Fisheries Finance Program (FFP) of the U.S. Department of Commerce (administered by NOAA/NMFS). The program makes long-term, fixed-rate loans for specified fisheries costs, including vessels, individual fishing quota (IFQ), and buy-back financing to purchase and retire permits or vessels in an over-capitalized fishery. Financing is available for 80 percent of vessel cost with a maximum term of 25 years. The rate is prescribed by program rules at 2 percent above the U.S. Treasury's cost of funds.[14]

A provision of the program prohibits loans that could contribute to overcapitalization of a fishery by increasing harvest capacity. This has been a barrier to many Alaska operators. Congressional appropriations for FY14 increased FFP's annual loan authority from $59 million to $100 million and removed the prohibition against new vessels that increase capacity. In June 2014 NOAA proposed modifying the program rules to bring them into conformance with the new appropriation terms. The action was taken because, in the language of the Federal Register, "…the existing fleet of U.S. fishing vessels consists of older vessels which are not optimal in terms of safety, efficiency, and environmental and fuel-efficient operation." NMFS also noted, the following, however:

> NMFS generally does not want to finance the cost of new fishing vessels or reconstruction of existing vessels that materially increase harvesting. NMFS believes it can entertain financing these costs only for vessels participating in limited access fisheries. Where catch limits control the annual harvest, replacement or improvement of vessels does not increase the total catch. The FFP currently does not make vessel loans in any fisheries that are listed as overfished or subject to overfishing.[15]

NMFS also raised a litany of potential issues associated with the rule change, including saying it could require a programmatic environmental assessment addressing all the fisheries of the United States that could take a considerable time. The rule request also includes an observation that even $100 million is not a large amount given estimates of the need for new vessels in the North Pacific alone at between $2.2 and $4.4 billion. Finally, the proposed rule change does not address interest rates, which typically run an estimated 2 percent higher than Title XI loans for non-fishing vessels made through MARAD[16]

State of Alaska Financing Programs

State of Alaska business-development loans are provided through AIDEA and various DCCED programs.

Alaska Industrial Development and Export Authority (AIDEA)

AIDEA was established by the Alaska legislature to promote economic growth and diversification within Alaska by providing affordable financing to businesses and infrastructure projects. The Loan Participation Program (LPP) works with private lenders and supports up to 90 percent of a loan to a maximum of $20 million. Current interest rates are 5 percent for an adjustable-rate loan and 5.35 percent for fixed-rate loans with terms up to 25 years. The LPP is active in most Alaska industries and was involved in the refinancing of the M/V Klondike

[14] https://www.federalregister.gov/articles/2014/06/30/2014-15173/fisheries-financing-program-construction-of-new-replacement-fishing-vessels
[15] http://www.gpo.gov/fdsys/pkg/FR-2014-06-30/html/2014-15173.htm
[16] Fishermen's News, July 2013

Express, a 137' catamaran offering day cruises in Prince William Sound. Allen Marine of Sitka also received financing through the LPP to restructure debt and expand into the small-cruise ship market.

AIDEA is authorized to develop, own, and operate roads, ports, airports, and other large infrastructure projects. For the MIS sector, AIDEA owns the Ketchikan Shipyard. AIDEA's involvement has helped the expansion of the shipyard, including construction of a 70,000 square-foot assembly hall.

AIDEA reports they have not received an application for financing of a commercial fishing vessel. AIDEA would likely use its Project Development program for such an arrangement.

Department of Commerce, Community & Economic Development, Division of Economic Development

Businesses active in a community with a population less than 5,000 with no road access to Anchorage, or less than 2,000 with access to Anchorage, can obtain financing through the **Rural Development Initiative Fund**. Used for start-up and expansion costs, a maximum of $300,000 is available over 25 years at 4 percent. Businesses in slightly larger (less than 30,000 residents) communities can gain financing through the **Small Business Economic Development Program**. Financing cannot exceed 90 percent of collateral value, is 20 years for capital purchases or five years for working capital, and has an interest rate dependent on the prime rate but cannot be lower than 4 percent or higher than 10 percent. Applicants are required to match loan funds with cash or other private, non-public financing. In many cases this private match must be one and one half the loan amount requested. The current rate is 4 percent.

Both commercial and charter fishing boat operators can obtain financing through the **Commercial Fishing Loan Program** and **Commercial Charter Fisheries Loan Program**. Commercial fishermen can finance IFQs, permits, vessels, and vessel upgrades. They can also finance debt and past tax obligations. Maximum loan amounts depend on what is being financed—typically ranging from $100,000 to $300,000 with an aggregate of $400,000—and can be increased with collateral. Interest rates (currently 4.25 to 5.25 percent) are based on the prime rate, and loan terms are 15 years. Charter boat operators can finance halibut permits and refinance debt. The maximum loan limit is $200,000 for a permit and $100,000 for other purposes. A single borrower cannot exceed $200,000 in aggregate loans. A letter from a bank denying financing is required. The loan period is 15 years at 6 percent interest.

Fish hatcheries and mariculture businesses can obtain loans for design, construction, and operations with the **Fisheries Enhancement** and **Mariculture Loan Programs**. Private and public organizations that have obtained a hatchery permit and public organizations that are in the process of obtaining a hatchery permit can finance up to $10 million and more in some cases. The maximum term is more than 30 years at an interest rate (currently 5 percent) based on the prime rate. Businesses that have a permitted mariculture farm in Alaska, experience or training in the industry, and have been denied alternative financing qualify. A maximum of $100,000 per year with an aggregate total of $300,000 can be financed over 15 years.

Alaska communities are able to finance IFQ purchases and then lease the quota to local fishermen through the **Community Quota Entity Program**. Both halibut and black cod qualify, and a maximum loan of $1 million per community is available. The maximum loan term is 25 years, interest payments can be deferred for two years, and the current rate is 5.25 percent.

Chapter 4: Alaska's Competitive Position

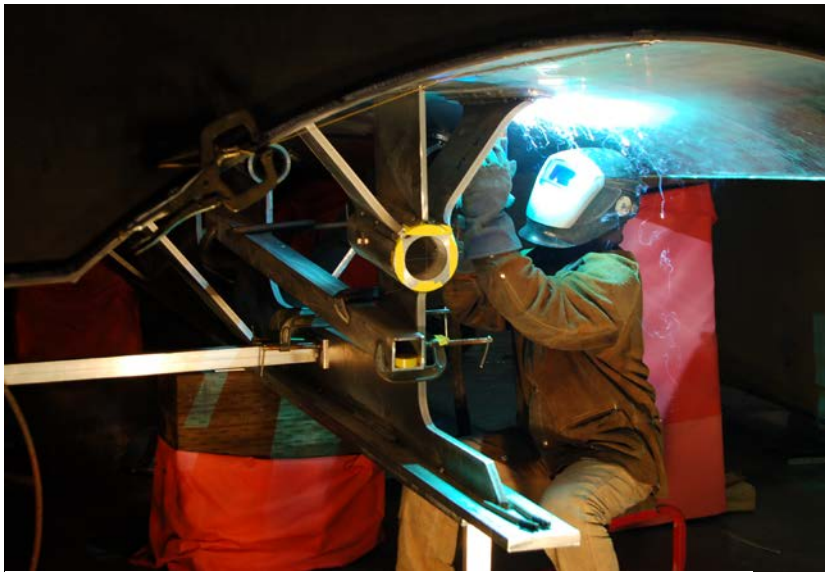
While Alaska has many MIS firms, they are geographically dispersed, most having developed primarily to support local maritime activity from Ketchikan to Nome. Puget Sound (including Vancouver, BC), on the other hand, has a comprehensive network of maritime firms that had its birth in the era of wooden shipbuilding and today serves a national and international set of customers. In the short-to-medium term, Alaska cannot hope to duplicate the range of products and services available in Puget Sound. Nevertheless, there are opportunities to expand services to the large number of boats and ships that operate in Alaska waters.

Key challenges to address include comparatively high labor costs, distance from suppliers, a relative lack of developed workforce skills, and limited maritime facilities. Nevertheless, Alaska's proximity to commercial fisheries and resource development activities results in a large pool of potential customers. The question is, what portion of their needs can best be served by the existing Alaska maritime sector? And, what areas of the sector would most benefit from further investment? This chapter discusses key competitive factors in more detail.

U.S. Shipbuilding and Repairing Industry

According to a 2013 report by the United States Maritime Administration (MARAD), the U.S. has 117 shipyards that are active in new construction and more than 200 others that engage in repair work.[17] Of the 117 shipyards, five are public yards operated by the U.S. Navy or U.S. Coast Guard; six are major shipyards capable of building large naval vessels and/or deep-draft ocean going commercial ships; and 20 are large shipyards capable of building mid-sized to large merchant ships, mid-sized to large naval vessels, offshore drilling rigs and high-value, high-complexity smaller vessels. The remaining 86 are relatively small shipyards capable of building the simpler types of smaller commercial vessels, such as tugs, towboats, offshore service vessels, fishing vessels, ferries, and barges.

In 2011, Virginia had the largest number of private-sector shipbuilding/repairing jobs with 26,700. Louisiana is next with 13,000 jobs, followed by Mississippi, Connecticut, California, Maine, Florida, Texas, Alabama, and Washington, which had 3,500 private-sector shipbuilding/repairing jobs in 2011. Alaska had 510 jobs in the sector.



An Alaska welder fabricating an aluminum boat.

These workers delivered 1,260 vessels of all types in 2012, down from 1,457 the year before. More than 80 percent were inland freight and deck barges. Of the 11 large deep-draft vessels delivered in 2012, eight were for

[17] http://www.marad.dot.gov/documents/MARAD_Econ_Study_Final_Report_2013.pdf

the U.S. government. According to MARAD, of $19.7 billion in total revenues for 2012, 60 percent came from military shipbuilding, 22 percent from commercial shipbuilding, and the remaining 18 percent from ship repairs.

Table 41. Deliveries from U.S. Shipyards by Type of Vessel, 2010-2012

Type of Vessel	2010	2011	2012
Large Deep-Draft Vessels	16	11	11
Offshore Service Vessels and Crew Boats	38	21	28
Tugs and Towboats	80	109	118
Passenger Vessels (>50')	22	30	33
Commercial Fishing Vessels (>50')	8	20	15
Other Self-Propelled Vessels (>50')	19	23	25
Large Oceangoing Barges	14	6	2
Inland Tank Barges	142	184	279
Inland Freight and Deck Barges	861	1053	749
Total Value of Deliveries	**1,201**	**1,457**	**1,260**

Source: The Economic Importance of the U.S. Shipbuilding and Repairing Industry, MARAD, 2013.

Table 42. Number of Vessels Built After 2013 and Under Contract, by State

State	Number of Vessels	State	Number of Vessels
Louisiana	73	California	11
Alabama	48	Maine	11
Mississippi	35	Connecticut	9
Florida	31	Virginia	7
Washington	26	Maryland	4
Wisconsin	22	New Jersey	2
Massachusetts	12	New York	2
Oregon	12	Texas	2
Pennsylvania	12	Rhode Island	1

Source: Marine Log, 2014.
Note: Data excludes fishing vessels and includes vessels over 100'.

While Washington overshadows Alaska in term of MIS capacity and numbers of boats built, other states in the nation have much larger MIS sectors than Washington. The Gulf Coast the largest center of new vessel construction and associated MIS activity.

Labor and Supply-Chain Costs

Labor Cost

Labor costs typically account for 40 to 60 percent of a maritime industrial sector project. An analysis of occupations within the MIS sector shows annual wages in Alaska tend to be higher than their Washington State and Gulf Coast counterparts. The table below shows wages for various maritime-related occupations range from 3 to 65 percent higher in Alaska than in Washington.

Table 43. Median Annual Wage by Occupation for Alaska, Washington, and Louisiana, 2014

Occupation	Alaska	Washington	Louisiana
All Occupations	$44,350	$40,910	$31,260
Welders, Cutters, Solderers, and Brazers	70,650	42,740	41,950
Farming, Fishing, and Forestry Occupations	39,760	24,170	29,880
Fiberglass Laminators and Fabricators	43,470	29,130	33,150
Machinists	64,100	45,980	42,080
Plumbers, Pipefitters, and Steamfitters	74,700	61,510	44,510
Industrial Machinery Mechanics	62,240	54,470	45,610
Mechanical Engineers	101,090	88,780	83,680
Electrical and Electronics Engineering Technicians	70,650	63,010	54,740
Motorboat Mechanics and Service Technicians	43,680	39,730	44,940
Electrical Engineers	104,010	96,140	90,830
Sailors and Marine Oilers	48,680	47,360	38,780

Source: BLS, 2014.

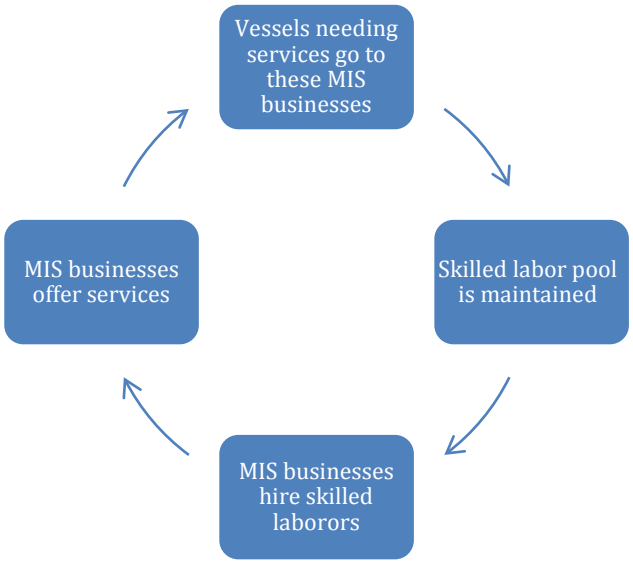
Labor Skills and Technology

A consistent theme among interviews conducted for this analysis was that Alaska suffers from a shortage of skilled labor in the MIS sector. Around three-quarters of MIS business representatives interviewed said finding labor was a struggle for their firm. This shortage appears to impact nearly all MIS categories and all skill levels.

At the same time, regulations governing the construction of vessels and systems require increasingly more sophisticated skills at all levels of construction, from modern recreational boats with complicated outboards and innovative computer systems to ocean-going tugs with diesel-electric propulsion and advanced navigation requirements.

Kodiak, Homer, Seward, Wrangell, and Ketchikan have had some success developing a demand-labor-service-demand feedback loop like the one illustrated at right. Doing so takes

Figure 3. MIS Feedback Loop



time, however, and Puget Sound has been in the process for much longer. The fact that Alaska ports tend to be geographically separated further complicates the challenge.

Supply-Chain Costs

Many businesses said shipping costs are a major reason Alaska firms are at a disadvantage compared with Puget Sound. The state's size, topography, and lack of extensive road or rail systems are a further challenge to supply-chain management. Advance planning and careful inventory control are critical for Alaska businesses trying to be cost-competitive.

Interviews indicate shipping can increase the cost of projects done in Alaska by 10 to 20 percent, minimum. For remote areas and urgent shipping, this cost increases drastically. Quotes from shippers confirm what was heard in interviews. Estimates were provided on the shipment of 4' x 8' sheets of steel from Seattle to Ketchikan and indicate, conservatively, a 6 percent increase in cost. The shipment of steel plates on a barge with little time constraint should be among the cheapest shipping cost of any material used in a MIS project. As urgency increases, goods must be shipped by air, and costs rise drastically. Displayed below are additional estimated shipping costs. Los Angeles is added for sake of comparison.

Table 44. Cost of Shipping 50 Pounds from Seattle to Various Destinations, UPS 2nd Day Air

Destination	Days in Transit	Cost
Dutch Harbor	3	$301
Nome	3	301
Kodiak	2	281
Juneau	3	281
Ketchikan	3	281
Anchorage	2	278
Los Angeles	2	156

Note: Cost is for a 15" cube weighing 50 lbs.
Source: United Parcel Service, July 2014.

Firms located in Washington and Oregon are able to avoid or drastically reduce shipping costs, allowing them an advantage when competing with Alaska MIS businesses.

Advantages of Alaska's Proximity to Fisheries

Alaska ports have two main competitive advantages over those in Puget Sound: 1) proximity to fisheries and 2) proximity to other resource development activities. The fuel bill for travel to Puget Sound can cost tens or even hundreds of thousands of dollars for each round trip. In some cases, vessel owners may incur additional crew costs as well. For boats that do not need to regularly return to Puget Sound, vessel owners may consider service and repair options closer to the areas in which they operate.

The table below shows McDowell Group estimates of transit times and fuel costs for various vessels between three Alaska ports and Seattle and Seward.[18]

Figure 4. Round-trip Fuel Cost Estimate for Various Types of Alaska Commercial Fishing

Dutch Harbor to Seattle — **Trip Length: 8-10 days; Distance: 1,800 nautical miles**

- 125' Crabber (~80 boats in the BSAI fleet): $67,500
- 125' C/V Trawler (~148 boats in the BSAI/GOA fleet): $87,750
- 150' Freezer Longliner (~38 boats in the BSAI fleet): $121,500
- 275' Catcher Processor Trawler (~35 boats in the BSAI fleet): $202,500

Dutch Harbor to Seward — **Trip Length: 4 days; Distance: 900 nautical miles**

- 125' Crabber (~80 boats in the BSAI fleet): $32,000
- 125' C/V Trawler (~148 boats in the BSAI/GOA fleet): $41,600
- 150' Freezer Longliner (~38 boats in the BSAI fleet): $57,600
- 275' Catcher Processor Trawler (~35 boats in the BSAI fleet): $96,000

Kodiak to Seattle — **Trip Length: 6-8 days; Distance: 1,260 nautical miles**

- Salmon Purse Seiner (~150 boats in Kodiak and Western AK): $14,500
- 125' Crabber (~80 boats in the BSAI fleet): $52,500
- 125' C/V Trawler (~148 boats in the BSAI/GOA fleet): $68,250
- 150' Freezer Longliner (~38 boats in the BSAI fleet): $94,500
- 275' Catcher Processor Trawler (~35 boats in the BSAI fleet): $157,500

Kodiak to Seward — **Trip Length: 1-2 days; Distance: 230 nautical miles**

- Salmon Purse Seiner (~150 boats in Kodiak and Western AK): $2,650
- 125' Crabber (~80 boats in the BSAI fleet): $9,600
- 125' C/V Trawler (~148 boats in the BSAI/GOA fleet): $12,480
- 150' Freezer Longliner (~38 boats in the BSAI fleet): $17,280
- 275' Catcher Processor Trawler (~35 boats in the BSAI fleet): $28,800

Southeast Alaska to Seattle — **Trip Length: 2-4 days; Distance: 650-900 nautical miles**

- Salmon Purse Seiner (~125 boats): $6,000
- 125' Crabber: $21,750
- 125' C/V Trawler: $28,275
- 150' Freezer Longliner: $39,150
- 275' Catcher Processor Trawler: $65,250

Source: McDowell Group estimates based on industry interviews, NOAA/ADFG vessel counts, and PSMFC (EFIN Marine Fuel Prices).

Sustaining Local MIS Services

To sustain a set of local MIS services, it is typically important to have a foundation of local demand to fund core operations. For example, the Ketchikan Shipyard is able to bid for work from firms outside Southeast Alaska in part because its existing maintenance contracts with the Alaska Marine Highway System help sustain the workforce and infrastructure needed to perform that additional work. Interviews suggest vessel owners, in turn, typically value and support local MIS businesses. For example, one fisherman from Southeast said he shops for

[18]Fuel prices were calculated using $4.00 per gallon in Dutch Harbor and Kodiak, $3.75 in Southeast, and $3.50 in Seattle.

marine electronics locally, even though he could buy them for less in Puget Sound, because he needs the local supplier to service his equipment. For commercial vessel owners, and especially fishermen, obtaining service promptly (i.e., from local providers) can mean the difference between a profitable and an unprofitable season.

Tax Comparison

A competitive factor for Alaska is the relative tax rates paid in different communities around Alaska, Washington, and Oregon. Areas with higher taxes may be less competitive as economic activity is more costly. The following table details property and sales taxes in various Alaska, Washington, and Oregon cities. All cities examined have property taxes with Portland having the highest rate. Regions in Washington have higher sales tax than Alaska and Portland has no sales tax. Alaska and Washington have no income tax while Oregon's income tax ranges from 5 to 9.9 percent. Alaska and Oregon have corporate income taxes that range from 0 to 9.4 percent and 6.6 to 7.6 percent respectively. Washington has no corporate income tax.

Property tax rates are variable based on the exact location of the facility, however rates expressed below reflect areas where MIS providers are active.

Table 45. Comparison of Property and Sales Taxes by City, 2014

	Property Tax Per $1,000 of Value	Sales Tax
Alaska		
Kodiak	$12.75	7%
Wrangell	12.75	7
Ketchikan	11.7	6
Homer	11.3	7.5
Juneau	10.66	5
Dutch Harbor	10.5	3
Cordova	9.43	6
Seward	8.12	7
Sitka*	6	5/6
Washington		
Port Angeles	12.16	8.4
Seattle	10.29	9.5
Port Townsend	10.16	9
Oregon		
Portland	17	-

*Sitka has a seasonal sales tax. Rates are expressed for Oct-Mar and April-Sep respectively.
Source: Alaska Taxable, 2014; King County, Clallam County, Jefferson County, City of Portland.

Competition in the Pacific Northwest

MIS capabilities in Oregon and Washington far exceed what is currently found in Alaska. This includes infrastructure such as dry-docks and cranes as well as a wide range of technical services. Among the larger ship-building/repairing firms in Puget Sound are the following:

- **Vigor Industrial** – Construction and repair of all types of vessels; approximately 2,000 employees.
- **Dakota Creek Industries** – Steel and aluminum vessels including tugs, freezer vessels, fireboats, and ferries; 600 employees.
- **Delta Marine** – High-speed pleasure craft, charter and commercial fishing boats; 300 employees.
- **Nichols Brothers** – Steel and aluminum monohulls, catamarans, ferries, transport ships and paddlewheel boats; 265 employees.
- **Kvichak Marine Industries** – Aluminum workboats, pilot boats, military and police craft, oil-spill vessels, etc.; 225 employees.
- **J.M. Martinac Shipbuilding** – Design and construction of a variety of vessels up to 250'; 125 employees.
- **Pacific Fishermen Shipyard** – Service and repair of tugboats, passenger boats, yachts and fishing vessels up to 300'; 70 employees.
- **All American Marine** – Aluminum survey and patrol boats, passenger ferries, gillnet bats, cruise and tour boats; 45 employees.
- **Rozema Boat Works** – Aluminum work boats up to 65', Bristol Bay gillnetters, oil-spill response boats a specialty; 10 employees.
- **Mavrik Marine** – Aluminum work boats and ferries, seine skiffs, work skiffs, gillnetters, seiner/crabber combo boats are boats a specialty; 15 employees.

An example of the difference in MIS capacity between Alaska and Puget Sound may be seen in one company active in both regions. Vigor Industrial operates six facilities in Washington and Oregon. These facilities offer more than seven dry-docks, 41 large cranes, and approximately three miles of piers. Vigor Industrial recently purchased the largest dry-dock in the nation, 960' long, 186' wide, and with a lift capacity of nearly 90,000 tons. In comparison the entire state of Alaska has a total of five dry-docks.

Many other shipyards in Washington and Oregon support the Alaska fleet. Lake Union Drydock Company operates two dry-docks; 25-ton capacity cranes; and hydraulic, metal, electronics, rigging, and marine-coating shops. Foss Maritime operates two shipyards with dry-dock capacity up to 2,000 tons, a marine railway with capacity of 640 tons, and full machine and metal fabrication shops.

Construction of a new 58' seiner by Platypus Marine in Port Angeles, Washington for a client in Alaska demonstrates the array of technical expertise needed to build even a relatively small fishing vessel to

modern standards, which include those of the American Bureau of Shipping. Platypus built the ABS-inspected hull and superstructure for fishermen in Petersburg. The vessel was designed by well-known Seattle naval architects Hockema & Whalen. Radar Marine of Bellingham installed the electronics, and Tri County Diesel of Bellingham installed the engine and generator. Fleet Refrigeration of Petersburg provided the refrigeration technology, and Puget Sound Hydraulics of Seattle designed and built the hydraulic system. The fishing gear came from Seven Star Marine Engineering in Rhode Island.[19] This cluster of MIS services in and around Puget Sound is why so many of the vessels operated in Alaska are built and maintained there. Relative to Alaska, the region offers much more capacity and expertise for MIS related activity.

[19] http://www.fishermensnews.com/story/2013/08/01/features/new-seiner-for-adamant-fisheries/195.html

Chapter 5: Sector Development Opportunities for Alaska

While Alaska's maritime industrial support sector faces a challenging environment, development opportunities do exist. This discussion focuses primarily on steps that may be undertaken or initiated by DCCED, in particular its Division of Economic Development (DED).

DCCED can advance MIS initiatives directly — through loan/grant programs, in partnership with other agencies or businesses — or indirectly, by serving as an information clearinghouse and/or facilitator between government and the private sector. DED is well positioned to participate in outreach about government programs and how to access funding and navigate the bureaucratic process, but also to gather feedback and information about the maritime sector for state managers and decision makers.

This chapter identifies key long-term trends and specific steps that should be included in a strategy to expand Alaska's maritime industrial support sector. Any potential financing commitments warrant case-by-case analysis, and there may be individual instances of opportunities in segments of the MIS sector not specifically identified in this report.

Long-Term Trends

Arctic Development

Partly because of climate change and partly because advancing technologies are opening new resource development opportunities, more vessels are operating in Arctic waters. This likely means that ports along Arctic routes will experience increased traffic. For example, Crystal Cruises is taking reservations for a luxury cruise through the Northwest Passage (traversing Northern Canada) in 2016. The 820' vessel will be the first of its kind on the route and will be accompanied by an ice-strengthened escort vessel. Stops on the 32-day voyage will include Kodiak, Dutch Harbor, and Nome.[20]

The Russian city of Murmansk is upgrading its harbor and rail connections in anticipation of hosting international cruise ships. On the Alaska side of the Bering Sea, there are a number of possible locations for an Arctic port.[21] Whether or when there will be enough Arctic travel to make such investments profitable remains unknown, however, and interviews indicate that most private finance institutions consider this arena more suitable for venture capital than debt financing.

Foss Maritime is currently building three tugs designed for Arctic operations in their shipyard located in Rainer, Oregon.[22] The first vessel to be completed will be the 132' Michele Marie with her sister-ships available in 2016 and 2017.

[20] http://www.adn.com/article/20140802/luxury-cruise-line-plans-northwest-passage-voyage
[21] http://barentsobserver.com/en/business/2013/11/murmansk-wants-be-cruise-liners-gateway-arctic-20-11
[22] http://www.alaskajournal.com/Alaska-Journal-of-Commerce/August-Issue-5-2014/Foss-Maritime-constructing-three-new-tugs-for-Arctic-work/

OIL AND GAS ACTIVITY

The increase in maritime activity associated with oil and gas exploration on Alaska's outer continental shelf (OCS) has the potential to impact MIS services. OCS development is in its infancy and was limited mainly to Royal Dutch Shell's efforts in 2012. However, the possibility of anywhere from 2.5 to 65.8 billion barrels of oil and 11.4 and 305 trillion cubic feet of natural gas, according to U.S. Minerals Management Service estimates, is likely to spur investment in the near to long term.[23] A 2009 report by Northern Economics and the Institute of Social and Economic Research at the University of Alaska, Anchorage indicates substantial economic activity would occur if Alaska's OCS was developed. A full development of this resource would result in an estimated 35,000 additional Alaska jobs, with payroll of $72 billion, and billions of dollars in revenue accruing to State and local governments, according to the report.[24] OCS development of any significant scale is likely to benefit Alaska MIS businesses, as it would be heavily reliant on the maritime sector for support.

Shell's recent OCS exploration, even though limited, touched many Alaska communities: Seward, Kodiak, and Dutch Harbor, among others.[25] These exploration efforts required approximately 20 support vessels, and many were from the U.S. Gulf Coast. This fleet relied on Alaska harbors, MIS service providers, and the Coast Guard when assistance was needed. Future OCS development would result in an additional influx of vessels, since the state currently lacks a sizable oil and gas support fleet.

ENVIRONMENTAL REGULATION

The Environmental Protection Agency (EPA) has developed a coordinated strategy to address emissions from large ships. This includes ocean-going and Great Lakes vessels flagged in the U.S. and elsewhere. Domestic regulations primarily cover engine and fuel standards under the Clean Air and Clean Water Acts, while international standards are enacted through the International Maritime Organization. The American Bureau of Shipping (ABS) has its own set of requirements for vessels seeking an "Environmental Safety" (ES) classification. ABS standards address nearly every major mechanical system as well as environmental management in general.

Harbors have their own EPA and other regulations. In addition, many harbors around Alaska have made efforts to achieve an "Alaska Clean Harbors" certificate, which is a voluntary program run by a nonprofit organization based in Homer. ACH helps harbors meet a set of best-management guidelines.[26] On the state level, standards have been enacted regarding wastewater discharge and petroleum spill prevention.

For MIS firms, growing attention to environmental compliance means demand for more services and new technical expertise. While smaller vessels are subject to fewer requirements than ocean-going ships, they too are being fitted with cleaner, more fuel-efficient engines and generators. Hybrid, diesel-electric propulsion plants represent another technology that could become more common in Alaska vessels. On the other hand, some regulations will likely increase costs to operate a boat, which could dampen MIS activity.

[23] http://www.iser.uaa.alaska.edu/Publications/Econ_Analysis_Offshore_O&GDevpt.pdf

[24] Northern Economics, Inc. and Institute of Social and Economic Research. Potential National-Level Benefits of Alaska OCS Development. Prepared for Shell Exploration & Production, February 2011

[25] http://doa.alaska.gov/ogc/ActivityCharts/Drilling%20and%20Completions/CHARTS_Wells_Completed_Exp_Statewide_NS_CI_(1999-2013)_140807.pdf

[26] http://alaskacleanharbors.org/certification/

ATTRACTING VESSELS TO ALASKA HARBORS

Recent indications by the Alaska Community Development Quota (CDQ) Group Coastal Villages Region Fund (CVRF) that it wants to homeport fishing vessels in Seward have fueled speculation that other maritime firms operating in Alaska will also move vessels to the state. In the visitor industry, UnCruise Adventures, a small cruise ship operator with multiple routes in Southeast, has indicated plans to move three vessels to homeports in Alaska for the off-season.

These developments are a positive sign for the Alaska MIS sector. However, for companies to relocate vessels, the business case must make sense, and this includes marketing, staffing, and other operating considerations, as well as availability of MIS services. Further, choosing to homeport a vessel in Alaska (i.e., to maintain a year-round moorage base there) does not necessarily mean that all the servicing of that vessel will occur in the state, particularly if any part of the vessel's routine operations involves a Puget Sound voyage.

The same logic applies to the challenge of enticing companies traditionally based in Puget Sound to move their headquarters to Alaska and become "Alaska firms." This strategy has been explored at various times and in various contexts for many years but has met with limited success. In addition to the marketing, staffing, and operating factors just mentioned, firms with roots in Puget Sound also have financial, legal, governmental, human resource, and other necessary relationships that would need to be re-defined and re-established in the event of a major relocation.

VESSEL REPLACEMENT

As described in Chapter 3, many vessels in Alaska's fishing fleets have reached or are nearing the end of their working lives. How rapidly vessels are upgraded or replaced, and in what manner, will be a function of many factors, including profitability of the fisheries, age, and capabilities of the vessel, availability of financing, how fisheries are managed, and regulatory requirements for vessels. Where the work will occur also depends on a variety of considerations, many of which are associated with the size and use of the vessel.

Smaller Vessels

Replacing small vessels (under 60') will be a major theme in coming years, particularly for the fishing industry. By 2025, the Alaska fleet will include roughly 3,100 vessels between 28' and 59' and more than 45 years old. In addition, several thousand skiffs and smaller craft (e.g. hand trollers and recreational boats) will near the end of their lifecycles. Shipyards in the Pacific Northwest have seen a number of new orders for limit seiners in recent years, partly due to new regulations for vessels over 50' in length. The same intensity of new vessel construction has not taken place in the gillnet, setnet, and power troll fleets. However, the difference also reflects growing interest in new (larger) vessels that are suitable for multiple fisheries in recognition of the financial advantages of operating these expensive assets year-round.

In some cases, Alaska firms are best suited to building (or at least designing or assembling) small vessels close to the waters where they will be used. Smaller budgets and the unique needs of certain fisheries and other local activities, such as marine taxi services, make these smaller vessels (less than 50') a poor fit for large shipyards down south. In addition, the cost to Alaska operators of monitoring a distant construction process and then transporting the finished vessel can be prohibitive. This suggests assembling "kit" boats or partially finished boats in Alaska is an opportunity. Precise advantages and disadvantages are location-specific and include

supply-chain logistics. Typical MIS services/facilities that must be in place locally, however, include: facilities to do assembly or fabrication (often in climate-controlled environments), and a platform or template for communicating and collaborating with potential buyers. It is also important for builders to be able to create economies of scale, leverage existing designs, and capitalize on acquired skills.

In addition to financing assistance, possible roles for the State might include a service that aggregates small boat orders that are based on a common design and issues RFPs for multi-unit contracts. Boat builders able to compete successfully for such contracts would enjoy the benefits of more efficient scale and more stable revenues.

Allen Marine of Sitka represents an unusual success story for Alaska. The company typically produces aluminum catamarans between approximately 50' and 100' in length, in part for use in its own day tour and small-ferry fleet. However, the firm has also built a significant number of passenger ferries and other vessels for out-of-state clients, including a commuter service that operates in and around New York City. In addition to its cultivation of out-of-state markets, a key to Allen Marine's success is its ability to maintain steady demand and a skilled workforce by building, operating, and leasing its own fleet while at the same time seeking other contracts.

Larger Vessels

It is unlikely that a significant proportion of the demand for larger ships (longer than 100') among fleets either in Alaska or elsewhere will be met by instate builders. Vigor has positioned itself as one source with its Ketchikan shipyard and recent Seward acquisition, and it is conceivable that individual components of larger ships might be built in Alaska. However, with its inherently higher costs, Alaska will be challenged to be competitive with shipyards in Puget Sound, the Gulf Coast, and elsewhere for production of larger vessels. In general, Alaska shipyards will be most competitive with respect to this market by offering maintenance services or rehabilitating older vessels.


An Alaska harbor undergoing improvements.

Recommendations

Strategic Analysis

Review the Goals of State MIS Sector Development Programs

The information in this report will help clarify opportunities as the State develops its priorities with respect to the MIS sector. Analysis suggests promotion of the following general development strategies are warranted:

- Enhance Alaska's capacity to compete in construction of vessels of less than approximately 50'.
- Assist communities in providing climate-controlled facilities for repair and servicing of larger vessels, particularly for painting and other regularly recurring services needed by vessels that spend a significant portion of their operating year in Alaska.
- Scale support for MIS sector development in proportion to the size and characteristics of the local fleet.
- Support development of regional MIS centers in areas where existing infrastructure provides a promising foundation for more intensive and comprehensive services needed to attract larger, more demanding maintenance and repair work.
- With respect to construction and maintenance of larger ships, work with firms that have proven capability to operate at that scale.

REVIEW THE STRUCTURE AND GUIDELINES OF EXISTING STATE FINANCING PROGRAMS

DCCED/DED loan programs currently function as a lender of last resort to Alaska residents for relatively small projects. These programs are designed, in part, to ensure public programs supplement private-sector financing and do not compete with private banks.

Over time, a supportive financing program should allow the state's MIS sector to develop additional capabilities and be more competitive with Puget Sound MIS services, but Alaska will remain limited by smaller economies of scale, shipping costs, remote geography, and a smaller population base to support the necessary workforce.

DED's loan programs have been successful in their mission, sending tens of millions of dollars back into the general fund - far in excess of what was committed. However, fewer types of projects now fit into existing programs because loan limits are not indexed to inflation. Even some seine skiffs are now too expensive to be included in the program. The volume of vessel purchase and upgrade loans made by the program has been flat over the past four years, despite anecdotal evidence that boatyard work for commercial fishing boats has increased significantly.

The State's prevention of LEPs being used by private lenders as collateral presents an opportunity for collaboration between the public and private sector. Where possible, the State could use its preferred status as a party able to use LEPs as collateral to strengthen financing deals while working in conjunction with private lenders.

Finally, the State of Alaska, through the legislative process, must determine the amount of risk the State is willing to accept. Interviews with industry participants identified the following specific concerns:

- Banks are often unwilling to extend credit longer than 7-to-10 years, while boat owners often seek 20-to-25-year financing.
- Components of the maritime sector, especially the fishing industry, are complex and unpredictable, which leads lenders to be more conservative and offer less attractive terms. For example, fishing provides seasonal, variable returns, which are unattractive attributes for lenders.

- Borrowers can have trouble meeting collateral requirements because the State-issued permits cannot be used as collateral by private lenders.

Financing Options

Explore Options to Incentivize Boatbuilding in Alaska

Because of the variety of businesses and business assets that make up the MIS sector, there is no single financing product that, alone, is likely to foster widespread new development. Among the ways the state could participate in loans with private sector lenders are guarantees that reduce the risk associated with long amortization periods, irregular income cycles, and collateralizing permits, in addition to raising loan limits for certain types of loans.

The State of Alaska can encourage boatbuilding in Alaska in several ways: through "Alaska-preference" on vessel construction projects, providing tax credits, loan guarantees, taking a position as a secondary lender, or other loan program stipulations. However, these options may require the State to bear additional costs and/or risk.

Loan Guarantees: The State of Alaska could steer business towards Alaskan boat builders by offering to guarantee loans if a vessel is built or upgraded in Alaska. Loan guarantees would also encourage, rather than compete with, the private banking sector and would likely lead to an expansion of private lending. Guarantees would likely lead, as well, to more attractive terms for borrowers (lower rates and longer loan repayment periods) as banks compete to make loans backed by the State of Alaska. In order to attract significant volumes of MIS work, the State would need the ability to guarantee loans ranging from $150,000 to upwards of $20 million, depending on the size of projects that can be performed by instate firms.

Guarantees would be a source of repayment risk for the State and could affect its credit rating. Further, a default would leave the State in the position of having to negotiate a settlement with the borrower or the shipyard. Finally, the State would need to address builder risk, described in Chapter 3. These demands likely would require additional staffing for the State loan agency.

Secondary Financing: Most interviewees identified loan term-length as a barrier to new construction. Alaska could incentivize boat/ship projects to be built in Alaska and extend the length of loans by acting as a secondary lender for loans beyond 7-10 years. For example, a fisherman planning to build a $400,000 gillnetter in Alaska could obtain $300,000 of traditional financing from a private lender for a ten-year period and borrow an additional $100,000 from the State of Alaska for an additional five-year period in a subordinated loan. The secondary lending position means, in the event of a default, the State would only be able to recoup its costs after the primary lender is made whole.

The State could also consider increasing the loan limits for a secondary financing program on larger, more expensive vessels to incentivize larger vessel construction projects built in Alaska. At this time Vigor owns the only two shipyards in Alaska (Ketchikan and Seward) capable of building or substantially upgrading large vessels. Any program expansion into larger vessel projects would likely benefit Vigor directly, but would be creating jobs for Alaskans as well.

Loan Stipulations: The State could alter its existing loan programs to incentivize boat-building in Alaska by stipulating that certain projects be done within the state. This could mean either funding larger construction

projects or making larger vessel modification loans at more attractive terms, contingent on having the work done in Alaska. However, not all MIS services are available in Alaska (e.g. specialized longline machinery), and vessel operators may struggle to find the services they need if they are limited to in-state providers.

Tax Credits: Implementing tax credits is a common strategy used to incentivize economic activity in a specific industry. The State could utilize its corporate income tax and possibly some fishery-related taxes to reduce the tax burden of individuals or companies active in MIS related industries. This reduction could compensate for some of the factors reducing Alaska's competitive position relative to other regions. However, the efficacy of tax credits could be limited as taxes paid by MIS firms to the State are relatively limited.

INCENTIVIZE RESIDENT OWNERSHIP IN ALASKA FISHERIES

A key objective of this study is to identify opportunities for Alaska to gain a greater share of the business and economic activity associated with MIS services to the Alaska fleet. A different approach to building the MIS sector in Alaska is to get more boats and other commercial fisheries assets, such as permits and quota share, into the hands of Alaskans. "Boats follow their owners," was a comment heard many times while analyzing Alaska's MIS sector. Residents who own permits (to fish commercially or guide sport charters) are more likely to have their boats based in Alaska and serviced by local companies. While simply increasing the number of boats based in Alaska will not necessarily make Alaska more competitive in providing MIS services, it could create more demand for instate services and improve the economies of scale that now challenge the industry.

HELP ALASKA COMMUNITIES ACCESS THE STATE'S BOND BANK

The State could explore new ways to assist communities to develop local maritime infrastructure. The Alaska Municipal Bond Bank Authority (AMBBA) is part of the Department of Revenue. AMBBA was established to provide Alaska communities access to national credit markets to borrow money at favorable interest rates. The bond bank has financed extensive harbor and dock projects in Seward, Sitka, and Homer. Although AMBBA has staff to help prospective borrowers, it is important that the bond bank's role and capabilities be recognized within the context of local government investment in MIS infrastructure.

FOCUS INFRASTRUCTURE DEVELOPMENT ON STRATEGIC PRIORITIES

Over the past decade (and earlier), many Alaska communities have invested in infrastructure necessary for MIS services. In particular, investment in haul-out equipment (such as travel lifts) and related uplands has resulted in more instate vessel maintenance and repair work. Additional investment in infrastructure and equipment can support further MIS development and potentially capture a greater share of the MIS work now conducted in Puget Sound. Such investment, however, will require strategic planning and careful cost/benefit analysis. The infrastructure most often noted as lacking in Alaska's MIS centers is covered work areas where painting and other activities requiring some degree of climate control can be performed.

Trends and Technology

SUPPORT EFFORTS TO RECRUIT NEW WORKERS TO MARITIME SECTORS

The *Alaska Maritime Workforce Development Plan* is a multi-agency effort by the State of Alaska to enhance Alaska's maritime labor pool. The plan identified five key strategies, two of which deal with recruiting new

workers.[27] Workforce development is the domain of DOLWD, Department of Education and Early Development (DEED), and the University of Alaska system. However, DED could offer assistance in developing materials that inform new workers about opportunities and requirements for maritime positions, and it might maintain a contact list for training programs and prospective MIS-related employment opportunities.

HELP SUPPORT COMMUNICATION AND OUTREACH

While individual components of the MIS sector hold conferences and events, it is not often the full range of vessel operators, bankers, boat builders, harbor officials, and other MIS businesses are in a room learning about challenges faced by each other. Efforts by DED to co-sponsor or in other ways support communication across the MIS sector would help the State track and evaluate emerging issues and opportunities. Communications should include local harbor officials, as they often have a broad perspective on local needs.

TRACK DEVELOPMENT OF ELECTRONIC MONITORING SYSTEMS (EMS)

EMS systems will probably not be needed on salmon fishing boats, pot boats, or dive boats, but are anticipated for small to medium-sized longline and trawl boats. There are roughly 1,900 Alaska commercial fishing boats that fall into this category. Presumably most would prefer to have EMS installation work done in Alaska provided quality, cost and other factors were equal.

Pilot programs are currently underway to test prototype EMS systems. Alaska-based firms are not at the forefront of this technology, but at least one EMS provider has offices in Alaska. While the window of opportunity to get involved in EMS design and manufacturing is closing (private companies are already testing their systems, and some have experience implementing them in other countries), much of the installation work will likely take place in Alaska. Installing EMS systems will require fabricators and marine electronic technicians, presenting an opportunity for specialized MIS-related development in Alaska.

EXPLORE CLUSTER DEVELOPMENT

A common strategy to increase MIS related activity is through cluster development. This strategy focuses on the symbiotic nature of multiple industries benefiting each other and boosting overall economic growth. As one sector grows, other sectors are strengthened and a feedback look is created. The Puget Sound region is an example of this type of cluster with many maritime businesses concentrated in a central location. This development model could be appropriate for communities such as Seward, Ketchikan, or Kodiak that currently offer a mature MIS industry. However, many of Alaska's dispersed coastal communities are not well suited to a strategy that depends on a concentration of economic activity. Broader regions such as Southeast or even the entire state could offer cluster development that work in conjunction with other industries such as timber or oil & gas.

TRACK THE KODIAK ELECTRIC VESSEL PROJECT

The Alaska Energy Authority is currently funding a project aimed at improving diesel engine efficiency and reliability through its Emerging Energy Technology Fund. The funding is supporting Kodiak Electric Vessel, LLC, a firm developing new diesel engine efficiency technology.

[27] http://www.alaska.edu/fsmi/AKMaritimeWFDPlan_HighRes_5-22-14.pdf

Many Alaska fishing vessels are overpowered and use outdated technology, and most are not equipped to efficiently run onboard electrical systems (pumps, electronics, lights, etc.). Work is underway to develop and implement a diesel-electric system which can power onboard electrical systems through the use of a proprietary Universal Modular Inverter Controller (UMIC) which controls RPMs to efficiently match the power load. Tests have shown that such a system could improve fuel efficiency by 40 percent by using a smaller generator while increasing peak power. Work is also underway on the design of a smaller, more durable generator head, which replaces larger, air-cooled heads that are prone to failure.

Kodiak Electric Vessel has plans for a diesel-electric (DE) propulsion system suitable for a 58' commercial fishing vessel. DE propulsion is a proven technology used in a wide variety of applications. DE systems weigh less, increase engine life, take up less space, and reduce noise all while improving fuel efficiency. It has been estimated that implementing a DE system in a 58' boat would save the boat owner $45,000 per year with an upfront cost of $150,000.[28]

The MIS sector opportunity associated with this new technology is related to potential assembly, installation and maintenance of new equipment.

[28] More information is available at: http://www.uaf.edu/files/acep/2013_REC_Round%201%20Project-Ultra-Efficient%20Generators%20and%20Diesel%20Electric%20Propulsion_Seraphim%20McGann.pdf

Select Quotes from McDowell Group Interviews

The following are quotes gathered while conducting interviews with port/harbor officials, boat builders, MIS businesses, and other individuals contacted for this project. These quotes have been edited slightly for ease of reading, and are not attributed to individuals for confidentiality purposes.

PORTS AND HARBORS

Most specialized services are not available in Seward. Most guys call Anchorage or Seattle. Our main competitors are from down south because we are able to work on larger vessels. We are starting to get more work from oil support, ferries, and other types of vessels but fishing boats are our main business.

-Seward Harbor

Kodiak is doing well. The new lift has kept busy. We are close to a break-even point where it supports itself financially. The new facility is modern, meets all EPA regulations and people like staying in Kodiak instead of heading south. One thing we do need here is a propeller shop.

-Kodiak Boatyard

The new lift is keeping us busy. Our waiting list is full and we continue to get calls from people wanting to haul their boats. A lot of fuel can be saved if boats come here instead of going south.

We have a few things going for us. Compared to other yards we are cheaper, our facility is close to town, and a growing number of marine services are being offered. On the negative side we are limited by space—the yard is currently full—and have a tough time getting marine electricians and fiberglass layers.

-Wrangell Harbor

Most of our vessels here are commercial fishing boats. We do get a fair amount of shipping that comes through here and a bunch of oil exploration boats were here when Shell was trying to drill up north. Our new harbor is basically full. Previously boats had to tie up three abreast at some of our docks.

We are expecting large number of oil exploration vessels around the summer of 2015 as Shell tries to drill again.

We don't really haul boats out in Dutch. People go to Seward, Kodiak, or Washington for most boat work.

-Port of Dutch Harbor

Homer has a lot going for it. We have a bunch of commercial fishing, recreational, and some larger boats. Our marine services are the best in the area. We do lack a lot of the infrastructure places like Kodiak have. A few private operations haul boats but there is no large travel lift. We do use airbags that allow large vessels to be hauled up the beach.

-Homer Harbor

We don't see Alaska and Puget Sound as being competitors. So much of what happens in Alaska benefits Puget Sound because most of the trade moves through our ports. What's good for Alaska is generally good for Puget Sound. For example, even though the Arctic Prowler was built in Ketchikan it had a positive impact on Puget Sound as it involved many Washington service and equipment suppliers. That wouldn't have been the case if it had been built in the Gulf of Mexico.

-Washington State Official

BOAT/SHIP BUILDERS

One of our main issues is finding a covered space to work on larger (over 45') boats.

Because it is so tough to find some maritime services, we have to do more work in-house.

Finding a good welder in Homer is worth more than gold.

Our bread-and-butter is seiners. Everyone wants to be able to hold more fish so we do a lot of stretch jobs where we add 5-7' onto the hull. I think 70 percent of the seiners we work on are outdated and will need substantial work in the future. The ones we work on average about 25 years old.

Alaska maritime services really need to clean up their act. I'm talking about drug testing, not dodging taxes by using cash, and classifying employees as sub-contractors to save money.

The new Coast Guard rules are really going to be a problem for Alaska. It is going to really impact the seine fleet above 50'

-Commercial boat builder in Homer

I really can't compete with the oil companies in Anchorage. I start my welders with no experience at $12 an hour and after a few months they go make $20 an hour somewhere else. My foreman is making $30 an hour and can't support a family because everything is so expensive.

Previous to 2009 I had plenty of work. The recession came and demand fell to almost nothing. The boats I had under contract we built at a loss because aluminum prices increased so much.

Everyone tries to gouge Alaska businesses. I call this the Alaska Gouge Factor—usually means I have to pay 10-20 percent more for materials compared to down south.

Workman compensation rates are criminally high.

-Recreational boat builder in Anchorage

I don't have much of an issue finding people. The shipping, rent, and insurance cost we pay is crazy but just a part of doing business.

We really focus on quality not on price point. If people only care about a cheap boat they can go elsewhere.

It is really tough for people to get financing for smaller (less than 40') commercial boats.

The Whittier Tunnel should be free.

-Anchorage commercial boat builder

The new classing rules from the Coast Guard is a huge deal for the industry. Large builders can deal with it by smaller ones don't have the capacity. These rules are going to increase construction costs by 10-20 percent.

Fisherman like shiny things. In other careers you buy a fast car. When you are a fisherman you buy a new boat.

-Boat builder that specializes in 58' seiners

FINANCING

We typically look for 25 to 35 percent equity in a new vessel project. Finding a loan length that works for the lender and the borrower is a big challenge. Typically we can do up to 10 years or perhaps longer in some cases, but borrowers often want something beyond 20 years.

We also look closely at the capability of the yard - their experience on similar projects - and their financial position. In many cases we need to build in a buffer because we know there will be cost overruns.

Other opportunities for the State of Alaska to help the sector? Honestly, we always hear how regulation slows everything down. It takes up a lot of time and adds a lot of cost for operators. Many with larger boats need to have dedicated people on staff who deal with regulatory issues, and that is something we keep an eye on as a lender because it so important. It would help a lot if the State could help boat owners or the support sector navigate the bureaucracy and advice on regulatory issues.

-Lender with experience servicing Alaska's maritime sector

A uniform problem across the industry, regardless of the vessel size, is access to capital. Many banks won't provide favorable terms because they don't understand the industry.

We have advised clients to look at banking hubs overseas, such as Geneva, in some cases that are more willing to work with borrowers to provide better terms.

One thing we've seen work pretty well is creating joint ventures for the sake of leverage the credit score of companies who are looking to make a passive investment. This improves the financial position of the project in the eyes of lenders. Native corporations with a strong financial position are likely partners in these deals.

There's a ton of private equity capital around that is looking for a home, but again they won't invest in industries they don't understand.

The Title XI program is a great model, having the federal government guarantee marine construction projects because it allows the lenders to be more competitive. Then they don't mind going out 20 or 30 years because there is a guarantee. The problem with the Title XI program is there's only so much money available to provide guarantees, a steep application fee and an extensive vetting process. However it would be huge if the State offered something similar.

-Maritime attorney

Even though vessels have been shown to last a long time, they are so expensive the payback doesn't pencil out on a traditional 10 to 15-year amortization. Some companies need 25 years.

If you are running from the Bering Sea, Seattle is not much farther than Southeast, and offers a lot more. Also, Lake Union is an advantage for long projects because it offers a fresh-water environment.

For larger boats, there is a big need for rebuilding, e.g., the Amendment 80 fleet and the shoreside pollock fleet. But the economics aren't there for a $10-15 million inshore pollock boat. There are a lot of options for financing larger vessels when the economics are good.

-Banker active in maritime financing

Supplemental Tables

Appendix Table 1. Sample of Ship/Boat Builders Active in Washington and Oregon, 2014

Shipbuilder	City
Oregon	
Giddings Boat Works	Charleston
Diversified Marine	Portland
Gunderson Marine	Portland
Vigor Industrial	Portland
Foss Shipyard	Rainier
Wahl Marine Construction	Reedsport
Washington	
Grays Harbor Motor Ship	Aberdeen
Dakota Creek Industries	Anacortes
Northern Marine	Anacortes
All American Marine	Bellingham
Vigor Industrial	Bremerton
Everest Marine	Burlington
Edwing Boat	Chinook
Vigor Industrial	Everett
Nichols Bros. Boatbuilders	Freeland
Little Hoquiam Shipyard	Hoquiam
Hansen Boat Company	Marysville
Rozema Boat Works	Mount Vernon
Platypus Marine	Port Angeles
Vigor Industrial	Port Angeles
Associated Shipbuilders Lake Union	Seattle
Ballard Marine Railway	Seattle
Delta Marine Industries	Seattle
Kvichak Marine	Seattle
Vigor Industrial	Seattle
Western Towboat	Seattle
Foss Shipyard	Seattle
Aleutian Yachts	Tacoma
Martinac Shipbuilding	Tacoma
Vigor Industrial	Tacoma
Christensen Yachts	Vancouver
Westport Yachts	Westport

Appendix Table 2: Recent New Construction in the Pacific Northwest (vessels less than 400')

Builder	Location	Vessel Type	Description	Delivery Date	Customer
ABD Boats	**Vancouver, B.C.**				
		Fishing		2013	James Walkus Fishing
		Tug		2012	Samson Tug & Barge
		Tug		2012	Standard Towing
		Passenger (2 vessels)		2011	Tymac Launch Service
Alaska Ship & Drydock	**Ketchikan, AK**				
		Longliner	136'	2013	Alaska Longline Company
All American Mar	**Bellingham, WA**				
		Tour Boat	83'	2014	Kenai Fjord Tours
		Ferry (4 vessels)	250 psgrs.	2015	King County, WA
		Research (3 vessels)	48'/57'/82'	2014	NOAA
Dakota Creek Ind.	**Anacortes, WA**				
		Longliner	191'	2014	Blue North Fisheries
		Research (2 vessels)	238'	2014	U.S. Navy
Diversified Marine	**Portland, OR**				
		Tug (2 vessels)		2013	Harley Marine
		Ferry		2011	Marion County OR
		Tug		2012	Shaver Towing
Edwing Boat	**Chinook, WA**				
		Fishing	56'	2014	Herrold Fish & Oyster
		Fishing	38'	2011	Jerry Olsen
		Fishing	32'	2012	John Vukas
		Fishing	56'	2011	Wiegardt & Sons
Everest Marine	**Coupeville, WA**				
		Fishing	(3 vessels)	2011-13	Coast Seafoods
		Barge		2014	Coast Seafoods
Foss Shipyard					
	Seattle, WA	Tug (3 Vessels)		2014-15	Foss Maritime
		Fireboat (2 vessels)	108'	2014	Port of Long Beach
	Rainier, OR	Tug	132' (3)	2014-16	Foss Maritime
Fred Wahl Marine Construction	**Reedsport, OR**				
		Fishing Vessel		2012	Afognak Strait LLC
		Fishing Vessel		2011	Alaskan Star Fisheries
		Fishing Vessel		2011	Aleutian Islands LLC
		Fishing Vessel		2012	Aqua Leo Corp.
		Tug		2011	Cruz Marine
		Fishing Vessel		2011	Dave Melling
		Fishing Vessel		2013	Dominator Fisheries

Source: Marine Log, McDowell Group.

Appendix Table 2: Recent New Construction in the Pacific Northwest (vessels less than 400')
(continued)

Builder	Location	Vessel Type	Description	Delivery Date	Customer
Fred Wahl Marine Construction (con't)	**Reedsport, OR**				
		Fishing Vessel		2013	Magnus Martens
		Fishing Vessel		2011	Robert Magnus LLC
		Fishing Vessel		2011	Saint Peter LLC
		Fishing (2 vessels)		2013	Wahl Fisheries
Gunderson Marine	**Portland, OR**				
		Deck Barge	360'	2014	Foss Maritime
		Tank Barge (2 vessels)	185,000 bbls	2015	Kirby Ocean Tptn.
		Deck Barge	300'	2014	Ulysses Inc.
Howard Moe Enterprises	**Hoquiam, WA**				
		Fishing Vessel	58'	2013	Al Andersen Enterprises
		Fishing Vessel	58'	2012	Louie E. Alber
Kvichak Marine	**Seattle, WA**				
		Passenger	64'	2012	Chemehuevi Transit Authority
		Pilot Boat	72'	2014	Columbia River Pilots
		Pilot Boat (2 vessels)	50'	2012	Crescent River Port Pilots
		Response boat	45'	2013	LA County Sherriff
		Passenger ferry	64'	2011	Long Beach Transit
		Fishing Tender	66'	2014	Norton Sound EDC
		RB-M (3 vessels)	45'	2013	NYPD
		Transport (2 vessels)	32'/38'	2013	Puget Sound Energy
		Pilot Boat	64'	2014	Savannah Pilots
		Push boat	25'	2011	Seattle City Light
		RB-M	45'	2012	Seattle Police
		Pilot Boat	50'	2013	Southwest AK Pilots Association
		Anchor Handling Utility (2 vessels)	38'	2012	Superior Energy Services
		TPSBs up to 80 vessels	33'	2011-14	U.S. Coast Guard
		Skimmer (15 vessels)	30'	2013	US Navy
Martinac Shipbuilding	**Tacoma, WA**				
		Longliner	184'	2013	Alaskan Leader
		Longliner		2013	Alaskan Leader Fish
		Tug (3 vessels)		2011-12	Pacific Tugboat
Nichols Brothers	**Freeland, WA**				
		Tractor Tug (2 vessels)	6,800 hp	2014	Baydelta Marime
		Landing Craft (2 vessels)	150'	2014	Bowhead Transport

Source: Marine Log, McDowell Group.

Appendix Table 2: Recent New Construction in the Pacific Northwest (vessels less than 400')
(continued)

Builder	Location	Vessel Type	Description	Delivery Date	Customer
Nichols Brothers	**Freeland, WA**				
		ATB Tug (2 vessels)	10,000 hp	2015	Kirby Ocean Tptn.
		Towboat	3,000 hp	2014	Magnolia Marine
		Ferry S-Structure (2 vessels)		2014	Vigor Seattle
		Ferry (2 vessels)	115'	2014	Wahkiakum County
Oregon Iron Works					
		CCM Test Craft	33'	2012	U.S. Special Ops.
Platypus Marine	**Port Angeles, WA**				
		Fishing	58'	2013	Adamant Fisheries
		Fishing (4 vessels)	58'		
Rozema Boat Works	**Mount Vernon, WA**				
		Seine Skiff (Multiple)		2010-2014	
		Oil Skimmer	65'	2012	
SAFE Boats International	**Tacoma, WA**				
		OTH IV - 16 (2 vessels)	26'	2014	U.S. Coast Guard
		MK VI Patrol Boat (10 vessels)	85'	2014	US Navy
Sylte Shipyard	**Maple Ridge, B.C.**				
		Tug (4 vessels)		2011-13	Gowlland Shipping
		Tug		2011	Samson Tug & Barge
Vancouver Shipyards	**N. Vancouver B.C.**				
		Tank Barge		2011	Marine Petrobulk
		Barge (11 vessels)		2011-13	Seaspan International
		Tank Barge			Seaspan International
		Chip Barge (2 vessels)			Seaspan International
Victoria Shipyards	**Esquimalt B.C.**				
		SAR Lifeboat		2011	Canadian Coast Guard
Vigor Industrial					
		Hopper Barge		2014	American Const'n.
		Fire Boat	88'	2014	City of San Francisco
		Covered Barge		2014	Georgia Pacific
		Tank Barge (5 vessels)	83,000 bbls	2011-15	Harley Marine
		Maint. Barge		2014	King County, WA
		Tank Barge		2011	Northside Gas
		Tugboat (3 vessels)		2014-15	Tidewater Barge Line
		Towboat	4,500-hp	2014	Tidewater Barge Line
		Ferry (2 vessels)	144 cars	2014	Washington State Ferries

Source: Marine Log, McDowell Group.

Appendix Table 3. Sample of Maritime Initiatives, Associations, and Advocacy Groups

Alaska	
Southeast Conference Transportation Committee	SEAPRO
Southeast Conference CEDS	CHADUX
Marine Exchange of Alaska	Homer Marine Trades
Alaska Association of Harbormasters and Port Administrators	Oceans Alaska
Ketchikan Marine Industry Council	
Regional	
Baltimore Marine Exchange	Mississippi Maritime Cluster
Greater Houston Port Bureau & Marine Exchange of the West Gulf	Northwest Washington Marine Cluster Study
Jacksonville, Florida Marine Transportation Exchange	San Pedro Bay Maritime Technology Cluster
Marine Exchange of Puget Sound	Sturgeon Bay Shipbuilding Cluster Map
Marine Exchange of San Francisco Bay Region	Virginia Maritime Association
Marine Exchange of Southern California	New Carolina TDL Council
Marine Association of the Port of New York / New Jersey	Massachusetts Maritime Commerce
Marine Exchange for the Delaware River and Bay	Maine Technology Institute Cluster Initiative
New Orleans Board of Trade	St. Petersburg Bayboro Marine Research Cluster
Port of Hampton Roads Maritime Association	Tampa Bay Marine Cluster
Tampa Port Authority	Savannah Maritime Association
The Merchants	Maritime Association of South Carolina
Northwest Cruise Ship Association	South Carolina Marine Association
Gloucester / EDA initiative (Massachusetts)	West Gulf Maritime Association
The Maritime Alliance (San Diego)	Louisiana Maritime Association
Seattle's Maritime Cluster (WA)	Louisiana Port Association
Narragansett Bay Cluster (RI)	Port of Los Angeles
Rhode Island Economic Monitoring Strategy (Maritime Clusters)	Hawaii Autonomous Maritime Robotics Cluster
Connecticut Maritime Coalition	Sea Vision UK
National	
American Association of Port Authorities	National Shipbuilding Network
American Bureau of Shipping	National Ocean Industries Association
MARAD	Offshore Marine Service Association
Maritime Information Service of North America	Passenger Vessel Association
National Oceanic and Atmospheric Association	Professional Mariners

Source: Ketchikan Marine Industry Council, 2012.

Appendix Table 3. Sample of Maritime Initiatives, Associations, and Advocacy Groups
(continued)

International	
Chamber of Shipping of British Columbia	Denmark-Sweden Joint Venture Maritime Cluster
International Maritime Organization	Maritime Cluster of Northern Germany
INTERTANKO	IDMO (Ireland)
Marine Log	Marine South East (England)
Oceans Advance (Labrador/Newfoundland)	Mersey Maritime (England)
Maritime Singapore	Marine Institute of Ireland
Singapore Maritime Cluster Fund	Marine South West (England)
European Network of Maritime Clusters	Maritime London
Maritime Cluster Bulgaria	Maritime Hull Partnership (UK)
Maritime Cluster Center of Europe (Denmark)	North Sea Shipping (UK)
Cluster Maritime	Sail NW (UK) – (Marine Leisure Development)
Bundesministerium fur Wirtschaft und Technologie (Germany)	Hong Kong Maritime Industry Council
Federazione del Mare (Italy)	Dubai Maritime Cluster
Luxembourg Maritime Cluster	Singapore Logistics Cluster
Dutch Maritime Network	Uruguay Shipbuilding Cluster Association
Maritime Forum (Norway)	Korean Shipbuilding Cluster
Polish Maritime Cluster	Trinidad and Tobago Shipbuilding Cluster Strategy
Spanish Maritime Cluster	Trinidad and Tobago Investment Strategy for Maritime
Maritime Forum (Sweden)	Prince Rupert Port Authority
Sea Vision UK (UK)	

Source: Ketchikan Marine Industry Council, 2012.

Community Profiles

In an effort to enhance the utility of this report, data from the 21 MIS centers identified in this report is centralized in the following section. While exploring these data the following points are helpful to remember:

- As mentioned in Chapter One, the Alaska fleet is organized by area of homeport.
- The following sources were used to determine the maritime infrastructure capacity of the communities included:
    - Corp of Engineers Port Survey, 2010
    - National Fisherman Pilothouse Guide, 2013
    - Marine White Pages, 2014
    - Alaska Department of Transportation, Harbor Directory, 1995
    - Aleutian East Borough Harbor Chart, 2013
    - Marine Exchange, 2013
- Interviews with local officials, 2014As covered in the methodology section, information about all MIS providers in a specific community is not easily accessible. The research team relied heavily on interviews with harbor and shipyard officials, MIS providers, and vessel operators to establish a basic understanding of MIS availability. Trade literature, vendor lists, telephone listings, and business licenses were then examined to confirm information collected in the interviews. From this effort, a list of MIS services was constructed and NAICS codes were used when possible to confirm the activity of MIS businesses.
- The following lists of MIS providers may excluded some organizations and therefore should be viewed as an index of MIS activity—more providers in one community relative to another indicates a higher level of MIS capacity and activity.

Anchorage

Anchorage Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
Anchorage	121	84	17	20	11	1	**254**

Source: McDowell Group Alaska Fleet Vessel Database.

MIS Providers Identified in Anchorage

Aluminum Fabrication	**Marine Safety**
Spectrum Enterprises	Alaska General Alarm
Boat Building	Engineered Fire & Safety
Heavy Weather Boats	Fasteners & Fire Equipment Co.
Reynolds Marine	SimplexGrinnell Fire Protection Co.
Boat Repair	Young's Firehouse
Professional Marine	Yukon Fire Protection Services.
Diesel Repair/Service	**Marine Salvage**
Alaska Diesel Electric	Alaska Marine Transport & Salvage
Alaska Diesel Rebuilders	**Marine Shipping**
Cummins Northwest	Horizon Lines
NC Power Systems Co.	**Marine Surveying**
Pacific Power Products	A Rising Wind Marine Surveying
Jim's Equipment Repair	Up And Under Marine Services
Diving	Cook Inlet Tug & Barge
American Marine Corp.	Crowley Marine Services
Global Diving & Salvage	**Maritime Law**
Pile Drivers & Divers Union Local 2520	Farley & Graves, PC
Engine Services	June, Marc - Law Offices of
Alaska Mining & Diving Supply	K&L Gates LLP
Alaska Vessel & Vehicle Repair	Law Office of Steven D Smith
NEI Fluid Technology	Mark C. Manning P.C.
Quadco	Russell, Karen- Law Offices of
Financial Services	Schneider, Michael- Law Offices of
CFAB - Alaska Commercial Fishing & Agriculture Bank	
Merrill Lynch	
Parker Smith & Feek	
Wells Fargo Bank	

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Anchorage

(continued)

Fuel and Lubricants	**Marine Towing**
Delta Western Fuel	Alaska Bearing Corp.
Inlet Petroleum Co.	Dowland-Bach
Petro Marine Services Corp	Ferguson Enterprises
Shoreside Petroleum	Puget Sound Pipe & Supply Co.
Hydraulics	US Bearings & Drives
Alaska Hydraulics	**Miscellaneous MIS Service**
Insulation Contractors	ACE Air Cargo
AIC Foam & Coatings	Air Liquide
Marine Communication	Airgas
Alaska Telecom	Alaska Pump & Supply
Alaska United Fiber System	Alaska Pure Water Products
Arctic Slope Telephone Association Cooperative	B & B Automatic Transmission
GCI	Coast Crane Co.
Northern Lights Avionics/Marine	Fleenor Paper Company
Marine Contractors	Independent Lift Truck of Alaska
Pacific Pile and Marine	Marita Sea & Ski
Swalling Construction Co.	Ocean Explorers
Marine Electronics	Rotating Equipment
Alaska Battery	Rural Energy Enterprises
Alaska Electrical Agents	Unitech of Alaska
Alaska R & C Communications	West Coast Paper
Arctic Controls	**Navigation**
Auto Electric Sales & Service	Scientific Fisheries Systems
Battery Specialist of AK	**Paint & Marine Coatings**
Brown's Electrical Supply Co.	Polar Supply
Crescent Electric Supply Co.	**Ports and Harbors**
Frigid North Co.	Anchorage, Port of
Grainger Industrial Supply	Knik Dock Co
Graybar Electric Co	Lynden Transport
Great Northern Source	North Star Terminal & Stevedore Co.
Gus' Electronic Marine Company	**Professional Services**
Hayden Electric Motors	Aecom
Interstate Battery System of AK	Coastwise Corp.
North Coast Electric Co.	
Tittle & Associates	

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Anchorage

(continued)

Marine Hardware and Supply	**Refrigeration**
Adams Enterprises	Johnstone Supply
Alaska Commercial Co.	Refrigeration & Food Equipment
Alaska Industrial Hardware	**Rental Services**
Alaska Steel Co.	B & B Tool Supply
Alaska Tent & Tarp	**Sandblasting**
Arctic Wire Rope & Supply	Hardware Specialties
B & J Commercial	**Stevedoring**
Donalson Co.	Sea Star North
Eagle Enterprises	**Welding**
Food Services of America	Superior Machine & Welding
Jackovich Industrial & Construction Supply	
Red Wing Shoe Store	
Redden Marine Supply	
Sampson Steel Co.	
Spenard Builders Supply	
West Marine	

Source: McDowell Group Infrastructure Database.

Cordova Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
Cordova	381	67	48	15	1	2	**514**

Source: McDowell Group Alaska Fleet Vessel Database.

Cordova MIS Infrastructure

Travel Lift Capacity (Tons)	165
Other Haul-out Method Capacity (Tons)	250, 90
Tidal Grid Capacity (Tons)	160, 180
Slips available	727
Wash-down Pad	Yes
Wash-down Water Treatment	Yes

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Cordova

Boat Building
Webber Marine & Mfg.
Engine Repair/Service
Alpine Diesel
Cordova Outboard
Fuel and Lubricants
Shoreside Petroleum
Hydraulics
Harbor Hydraulics
Marine Communication
Cordova Wireless Communication
Marine Hardware and Supply
LFS - Cordova
NAPA/Anchor Parts
Redden Marine Supply
Seaman's Hardware
Marine Storage
Bayside Storage
Marine Surveying
Tirrell Marine Surveyors

Source: McDowell Group Infrastructure Database.

Craig Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
Craig	28	53	17	2	0	0	**100**

Source: McDowell Group Alaska Fleet Vessel Database.

Craig MIS Infrastructure

Hydraulic Trailer Capacity (Tons)	60
Tidal Grid Capacity (Tons)	51, 51, 51, 103
Slips available	222
Wash-down Pad	Yes
Wash-down Water Treatment	Yes

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Craig

Fuel and Lubricants
Petro Marine Services Corp.
Marine Electronics
Paul Dawson Electric
Thomas and Sons Electric
Marine Hardware and Supply
Thompson House Supermarket
Marine Repair
Perez Repair and Maintenance
Richard Klein Marine Diesel
Southeast Mechanical
Ports and Harbors
Port of Craig
Rental Services
Tyler Rental

Source: McDowell Group Infrastructure Database.

Dillingham Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
Dillingham	181	0	1	4	3	0	**189**

Source: McDowell Group Alaska Fleet Vessel Database.

Dillingham MIS Infrastructure

Hydraulic Trailer Capacity (Tons)	50
Wash-down Pad	No
Wash-down Water Treatment	No

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Dillingham

Boat Repair	**Ports and Harbors**
PAF Marine Service	Dillingham Marina
Diesel Repair/Service	**Refrigeration**
Motive Power Marine	Integrated Marine Systems
Fiberglass Fabrication	Pacific West Refrigeration
B & C Fiberglass	Sea Cool Refrigeration
Fuel and Lubricants	**Welding**
Delta Western Fuel	Pleier Welding
Marine Hardware and Supply	
LFS Marine Supplies	
PAF Boatyard	

Source: McDowell Group Infrastructure Database.

Dutch Harbor Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
Dutch Harbor	10	10	11	7	22	3	**63**

Source: McDowell Group Alaska Fleet Vessel Database.

Dutch Harbor MIS Infrastructure

Dry-dock Capacity (Tons)	1000
Slips available	133
Wash-down Pad	No
Wash-down Water Treatment	No

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Dutch Harbor

Boat Repair	**Marine Hardware and Supply**
Alpha Welding & Boat Repair	Alaska Ship Supply
Mac Enterprises	LFS - Dutch Harbor
Diesel Repair/Service	Net Systems
NC Power Systems Co.	**Marine Safety**
Fuel and Lubricants	Alaska Marine Safety
Delta Western Fuel	**Navigation**
North Pacific Fuel	Alaska Marine Pilots Assn.
Offshore Systems	**Ports and Harbors**
Hydraulics	Port of Dutch Harbor
Hydra-Pro Dutch Harbor	**Refrigeration**
Rapp Hydema AK	Waterfront Welding & Refrigeration
Marine Electronics	**Ship Building/Repair**
Harris Electric	Magone Marine Services
Lunde Marine Electronics	**Stevedoring**
	Pacific Stevedoring

Source: McDowell Group Infrastructure Database.

Haines Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
Haines	47	30	3	3	1	1	**85**

Source: McDowell Group Alaska Fleet Vessel Database.

Haines MIS Infrastructure

Hydraulic Trailer Capacity (Tons)	40
Tidal Grid Length (Feet)	80
Tidal Grid Capacity (Tons)	50
Slips available	250
Wash-down Pad	Yes
Wash-down Water Treatment	Yes

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Haines

Boat Building
Distinctive Finishes
Fuel and Lubricants
Delta Western Fuel
Marine Hardware and Supply
Alaskan Sport Shop
Canal Marine Co.
Marine Repair
Marine Mechanical
Ports and Harbors
Port of Haines

Source: McDowell Group Infrastructure Database.

Homer Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
Homer	280	234	45	28	9	0	**596**

Source: McDowell Group Alaska Fleet Vessel Database.

Homer MIS Infrastructure

Travelift Capacity (Tons)	70
Hydraulic Trailer Capacity (Tons)	20
Other Haul-out Method Capacity (Tons)	Unknown
Tidal Grid Length (Feet)	59, 120
Tidal Grid Capacity (Tons)	50, 200
Slips available	920
Wash-down Pad	No
Wash-down Water Treatment	No

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Homer

Aluminum Fabrication	**Marine Hardware and Supply**
Anderson Glass Repair	Bulletproof Nets
Bay Welding Services	Coastal Freight & Salvage
Boat Building	Eagle Enterprises
Freddy's Marine	GD Business
Smokey Bay Boatworks	In Demand Marine
Boat Hauling and Storage	Kachemak Gear Shed
Homer Boat Yard	Nomar
Kachemak Marine Haul Out	Redden Marine Supply
Northern Enterprises Boat Yard	Spenard Builders Supply
Boat Lettering & Graphics	Sport Shed The
Custom Lettering & Signs	**Marine Safety**
Boat Repair	Eagle Enterprises
Homer Boat Yard	
Northern Enterprises Boat & Commercial Yard	

Source: McDowell Group Infrastructure Database

MIS Providers Identified in Homer
(continued)

Diving	**Marine Surveying**
C&C Diving and Salvage	Edgewater Marine Surveyors
Engine Services	Rocky Point Enterprises
All Seasons Honda	Rocky Point Survey
Marine Services of Alaska	SunSpin Maritime International
Fiberglass Fabrication	**Metal Fabrication**
Freddy's Marine	Country Welding
Sloth Boats	Custom Welding
Financial Services	D&D Welding
1st Alaska Insurance	Glenns Welding
First National Bank Alaska	Homer Steel Fabricators
Homer Insurance Center	Metalizing
Malone Insurance Agency	OK Services
North Star Insurance Services	**Miscellaneous MIS Service**
Wells Fargo Bank Alaska	Alaska Boats & Permits
Fuel and Lubricants	**Navigation**
Home Run Oil Company	Southwest Alaska Pilots Association
Petro Marine Services Corp.	**Ports and Harbors**
Generator Sales/Service	Homer, Port of
All-Seasons Honda	North Star Terminal & Stevedore Co.
Glasswork	**Professional Services**
Lakeshore Glass	Port Engineering Services
Hydraulics	**Propeller Repair/Installation**
Desperate Marine	Advanced Propeller
Marine Electronics	AK Advanced Propeller
Full Power	West Coast Propeller Service
Liberty Electric	**Welding**
South Central Radar	Fritz Creek Welding
Woodworth Electric	Glenn's Welding

Source: McDowell Group Infrastructure Database

Hoonah Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
Hoonah	27	20	3	1	0	1	**52**

Source: McDowell Group Alaska Fleet Vessel Database.

Hoonah MIS Infrastructure

Travel Lift Capacity (Tons)	220
Hydraulic Trailer Capacity (Tons)	35
Tidal Grid Length (Feet)	80
Tidal Grid Capacity (Tons)	70
Slips available	258
Wash-down Pad	Yes
Wash-down Water Treatment	Yes

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Hoonah

Boat Hauling and Storage
Gus' Electronic Marine Company
Hydraulics
Tideland Tackle and Marine
Marine Hardware and Supply
Harbor Marine
Ports and Harbors
Hoonah Harbor

Source: McDowell Group Infrastructure Database

Juneau Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
Juneau	380	378	77	67	35	5	**942**

Source: McDowell Group Alaska Fleet Vessel Database.

Juneau MIS Infrastructure

Travelift Capacity (Tons)	15, 35
Hydraulic Trailer Capacity (Tons)	45
Tidal Grid Length (Feet)	70
Slips available	1400
Wash-down Pad	Yes
Wash-down Water Treatment	Yes

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Juneau

Engine Services	**Marine Surveying**
New Life Motors	Sepel & Son Marine Surveying
The Outboard Shop	**Maritime Law**
Fiberglass Fabrication	Baxter, Bruce & Sullivan
The Boat Doc.	**Navigation**
Fuel and Lubricants	Marine Exchange of Alaska
Delta Western Fuel	**Ports and Harbors**
Petro Marine Services Corp.	Port of Juneau
Taku Oil Sales	**Professional Services**
Hydraulics	Alaska Maritime Documentation
Extra Deckhand Automatic Coiler	Willies Marine Services
Maritime Hydraulics	**Rental Services**
Marine Electronics	Tyler Rental
Brick's Electronics	**Welding**
Maritime Manufacturing	T & S Welding
Marine Hardware and Supply	
Costco Wholesale	

Source: McDowell Group Infrastructure Database

Ketchikan Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
Ketchikan	136	189	56	54	35	14	**484**

Source: McDowell Group Alaska Fleet Vessel Database.

Ketchikan MIS Infrastructure

Travel Lift Capacity (Tons)	50
Hydraulic Trailer Capacity (Tons)	35
Railway Capacity (Tons)	300
Dry-dock Capacity (Tons)	2500, 10000
Other Haul-out Method Capacity (Tons)	65, 65, 65, 65, 80, 80
Slips available	1020
Wash-down Pad	Yes
Wash-down Water Treatment	Yes

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Ketchikan

Diesel Repair/Service	**Marine Surveying**
Alaska Diesel Power	A.K. Olmstead & Sons Marine Surveys
Diesel Doc	ABC Marine Surveyors
Hal's Equipment And Supply	C&O Marine
Lighthouse Marine	Systems Engineering
POW Construction Rentals	Tongass Engineering
Southeast Diesel & Electric	**Marine Towing**
Steves Gas And Diesel Repair	Amak Towing Co.
Thorne Bay Equipment	Boyer Towing Co.
Triple F Leasing	Cowan Towing & Salvage
Tyler Rental	Olson Marine
	Revilla Tug Co.

Source: McDowell Group Infrastructure Database

MIS Providers Identified in Ketchikan
(continued)

Diving	**Maritime Law**
Alaska Commercial Divers	Bengaard Services
Alaska Diving Co.	Blake M. Chupka, A Professional Corporation
Diversified Diving Services	Boyette & Chupka, Attorneys At Law
Engine Services	Bryan T. Schulz, Attorney At Law
Alaska Outboard	Burton And Associates
Lighthouse Marine	Ellis Law Offices, Inc
Financial Services	Fred Miller Attorneys At Law
Alaska Pacific Bank	Keene & Currall, A Professional Corp
Alaska Timber Insurance Exchange	Law Office Of Dennis L. McCarty
Alaska USA Federal Credit Union	Law Office Of Stephen Bradford
Allstate Insurance	Law Offices of C. Keith Stump
Credit Union1	Michael P. Heiser, Attorney At Law
First Bank	North Tongass Law
Key Bank Of Alaska	Thomas E Schulz, Attorney At Law
New York Life	Ziegler Law Firm
State Farm Insurance	**Metal Fabrication**
Tongass Federal Credit Union	Johnson Fabrication
Wells Fargo Bank Alaska	RTM Welding & Repair
Fuel and Lubricants	Schmolck Mechanical Contractors
Amerigas Propane L	Union Machine Shop
Anderes Oil,	Westwind Fabrication And Design
Annette Island Gas Service	**Navigation**
Arrowhead Lp Gas	Southeast Alaska Pilots Association
Elfin Cove Fuel	**Ports and Harbors**
Fuel Solutions	Air Marine Harbor
Petro Alaska	Cape Fox Corporation
Petro Marine Services	City Of Ketchikan Ports & Harbors
Hydraulics	City Of Saxman
Advanced Communications	Doyon's Landing
Communications Tech	City of Ketchikan
PC Hydraulics	Knudson Cove Marina
Insulation Contractors	Power Systems & Supplies Of Alaska
Adams Marine Services	Saxman Seaport
	Seley Corporation
	Survey Point Holdings

Source: McDowell Group Infrastructure Database

MIS Providers Identified in Ketchikan

(continued)

Marine Electronics	**Professional Services**
Alaska Power & Telephone Company	Architectural Cad Design
Bobwires Incorporated	Barry Drafting Services
Channel Electric	Bowers Engineering Services
Chatham Electric	Fabry Construction
First City Electric	Herringbay PE
Island Electric	Marble Construction
Marine Hardware and Supply	Menzies Engineering Group
Madison True Value	Miles D. Enright Company
Murray Pacific Supply Of Alaska	Monrean Engineering And Assoc.
Power Systems & Supplies Of Alaska	Pool Engineering
Timber & Marine Supply	Port Engineer Marine Services
Tongass Trading Co.	R & M Engineering Ketchikan
Marine Safety	Smart Construction Co.
Alaska Steamship Response	Southeast Engineering Co.
Southeast Alaska Petroleum Resource Org.	Western Dock And Bridge
Tecs-Ak	**Propeller Repair/Installation**
Marine Shipping	Adam's Marine Services
NORPAC	**Rental Services**
	Tyler Rental
	Ship Building/Repair
	Alaska Ship & Drydock
	Stevedoring
	Southeast Stevedoring Corp.

Source: McDowell Group Infrastructure Database

King Cove Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
King Cove	9	27	7	1	0	0	**44**

Source: McDowell Group Alaska Fleet Vessel Database.

King Cove MIS Infrastructure

Travel Lift Capacity (Tons)	150
Tidal Grid Length (Feet)	80
Slips available	133
Wash-down Pad	No
Wash-down Water Treatment	No

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in King Cove

Marine Hardware and Supply
John Gould & Sons Co.
Ports and Harbors
Port of King Cove

Source: McDowell Group Infrastructure Database.

Kodiak Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
Kodiak	128	186	102	69	25	2	**512**

Source: McDowell Group Alaska Fleet Vessel Database.

Kodiak MIS Infrastructure

Travel Lift Capacity (Tons)	25, 50, 100, 150, 660
Tidal Grid Length (Feet)	230
Tidal Grid Capacity (Tons)	350
Slips available	660
Wash-down Pad	Yes
Wash-down Water Treatment	Yes

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Kodiak

Boat Building	**Marine Safety**
Blueyodel Boat Mfg.	American Red Cross
Fuller Boatyard	Joycraft Marine Safety Equipment
Boat Lettering & Graphics	Oil Spill Response Vessels
Rustic Designs	**Marine Salvage**
Boat Repair	M/V Lazy Bay
Kodiak Boat Repair	**Marine Shipping**
Quality Marine Of Alaska	Horizon Lines
Diesel Repair/Service	**Marine Storage**
77 Diesel And Marine	Steele Warehouse & Storage
K.J. Diesel	**Marine Surveying**
Diving	Alaska Marine Surveyors
Pacific Diving Services	**Metal Fabrication**
Fuel And Lubricants	Arc N Spark
North Pacific Fuel	B&R Fabrication And Repair
Petro Marine Services Corp.	Butts Metalwork
Generator Sales/Service	Fred Nass Enterprises
Kodiak Diesel Service	Heavy Metal
Warner Tire And Yamaha	Tandy's Welding

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Kodiak

(continued)

Hydraulics	**Miscellaneous MIS Service**
Alaska Hydraulics	Kodiak Sanitation
Island Hydraulics	Zimmer Rentals
Marine Communication	**Ports And Harbors**
Aksala Electronics	Port of Kodiak
Marine Contractors	**Refrigeration**
Coastal Contracting	C-Wing Services
Marine Electronics	Kodiak Refrigeration
Frontier Micro Systems	Kodiak Service Co.
Kodiak DC Electric	North Pacific Refrigeration
Radar Alaska Marine Electronics	**Rental Services**
Marine Hardware And Supply	Kodiak Rental Center
Advantage Marine	**Sandblasting**
Eagle Nets	Kodiak Sandblasting
Kodiak Marine Supply	Kodiak Sandblasting Abrasive Sales
Kodiak Metals & Supply	**Welding**
Mack'S Sport Shop	Advantage Marine
Napa Auto Parts	Alaskan Anvil
Net Systems	Arc 'N' Spark Welding
Pacific Pot Works	Island Welding Services
Spenard Builders Supply	Lester Welding
Sutliff'S True Value Hardware	M.C. Welding
Marine Repair	Monashka Bay Welding
Ab Boat Repair	Sparkys Welding
Hayes Fabrication	
Highmark Marine	
Pat'S Boat Repair	
Rotor Services	
Sea Walker Marine	
Szabo Marine Services	

Source: McDowell Group Infrastructure Database.

Naknek/King Salmon Fleet, Number of Vessels by Length

Homeport	28'-35'	36'-49'	50'-59'	60'-99'	100'-200'	+200'	Total
Naknek/King Salmon	296	0	1	5	3	0	**305**

Source: McDowell Group Alaska Fleet Vessel Database.

Naknek/King Salmon MIS Infrastructure

Travel Lift Capacity (Tons)	30
Hydraulic Trailer Capacity (Tons)	30
Other Haul-out Method Capacity (Tons)	400
Wash-down Pad	No
Wash-down Water Treatment	No

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Naknek/King Salmon

Aluminum Fabrication	**Marine Storage**
Alfa Aluminum Fabrications	Adesco
Diesel Repair/Service	**Marine Surveying**
Charlie's Sport Shop	Bay Marine Surveyors
Matrix Marine	**Metal Fabrication**
Peninsula Automotive	Maritime Fabricators
Fiberglass Fabrication	**Miscellaneous MIS Service**
Bilkin Fabrication	Wally's Welding and Repair
Fuel and Lubricants	**Ports and Harbors**
Delta Western Fuel	Bristol Bay Borough
Worldwide Fuel	**Propeller Repair/Installation**
Hydraulics	Bristol Bay Supply
Mike Holmes	**Refrigeration**
Marine Communication	Integrated Marine Systems
Bristol Bay Cellular Partnership	Pacific West Refrigeration
Marine Electronics	Sea Cool Refrigeration
Badger Electric	Stay Cool Refrigeration

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Naknek/King Salmon
(continued)

Marine Hardware and Supply	**Shipwrights**
Bradford Appliance and Lumber	Chuck Cook Shipwright
LFS- Naknek	**Welding**
Naknek Trading	Bristol Bay Welding
Napa	Chuck's Welding Wagon
Sea-Mar	Fishy Fabrications
Marine Repair	
A G L	
All Sound Fabrications	
King Salmon Marine	
Lynn's Fiberglass Repair	
Might Metal Works	
Mitchell Services	
Sea-Mar	

Source: McDowell Group Infrastructure Database.

Nome Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
Nome	12	3	3	0	1	0	**19**

Source: McDowell Group Alaska Fleet Vessel Database.

Nome MIS Infrastructure

Hydraulic Trailer Capacity (Tons)	50
Other Haul-out Method Capacity (Tons)	Unknown
Wash-down Pad	No
Wash-down Water Treatment	No

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Nome

Marine Shipping
Arctic Maritime Agency
Ports and Harbors
Port of Nome
Ship Building/Repair
Alaska Arctic Marine and Divers

Source: McDowell Group Infrastructure Database.

Petersburg Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
Petersburg	123	126	79	31	9	3	**371**

Source: McDowell Group Alaska Fleet Vessel Database.

Petersburg MIS Infrastructure

Hydraulic Trailer Capacity (Tons)	30, 50
Railway Capacity (Tons)	300
Tidal Grid Length (Feet)	40, 85
Tidal Grid Capacity (Tons)	20, 200
Slips available	575
Wash-down Pad	No
Wash-down Water Treatment	No

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Petersburg

Diesel Repair/Service	**Marine Hardware and Supply**
Wikan Enterprises	Hammer & Wikan
Diving	Trading Union
Bob Ziemke	**Marine Repair**
Donny Richards	Piston & Rudder Service
Mike Bangs	**Marine Surveying**
Randy Lantiegne	Edson Marine Surveys
Engine Services	Martin Surveyors of SE AK
Hammer's Marine	Northwest Marine Surveyor
Petersburg Motors	**Metal Fabrication**
Rocky's Marine	Piston & Rudder Service
Tongass Marine	Wikan Enterprises
Equipment Sales	**Miscellaneous MIS Service**
AK Fibre/Tyler Rentals	Island Voyages
Fiberglass Fabrication	Mitkof Crane Company
Josef Quitslund	Tonka Toy

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Petersburg
(continued)

Fuel and Lubricants	**Refrigeration**
Petro Marine Services Corp.	Fleet Refrigeration
Glasswork	**Shipwrights**
Dale Drllevich	Andy Cowen
Marine Electronics	Caven Pfeiffer
Ace Electronics	Petersburg Shipwrights
Alaska Commercial Electronics	**Welding**
Devron	MJ Enterprises
Petersburg Electronics	O.W. Enterprises
Ports and Harbors	Petr Machalek
Port of Petersburg	

Source: McDowell Group Infrastructure Database.

Sand Point Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
Sand Point	23	36	22	3	2	0	**86**

Source: McDowell Group Alaska Fleet Vessel Database.

Sand Point MIS Infrastructure

Travel Lift Capacity (Tons)	75, 150
Tidal Grid Length (Feet)	60, 150
Slips available	134
Wash-down Pad	Yes
Wash-down Water Treatment	No

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Sand Point

Marine Hardware and Supply
Alaska Commercial
Marine Surveying
Island Marine Surveyors
Ports and Harbors
Robert E Galovin Small Boat Harbor

Source: McDowell Group Infrastructure Database.

Seward Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
Seward	114	135	20	25	5	2	**301**

Source: McDowell Group Alaska Fleet Vessel Database.

Seward MIS Infrastructure

Travel Lift Capacity (Tons)	50, 250
Hydraulic Trailer Capacity (Tons)	20, 40
Dry-dock Capacity (Tons)	5000
Slips available	668
Wash-down Pad	Yes
Wash-down Water Treatment	Yes

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Seward

Boat Repair	**Marine Hardware and Supply**
Catalyst Marine Engine	The Fish House
Cool Hand Luke's	Spenard Builders Supply
Four Seasons Boat Services	**Marine Storage**
Quality Marine	4 Seasons
Seward Ship's Ace Hardware & Marine	Barderson
Seward Ships Chandlery	Knots So Fast
Storm Chasers Marine Services	Mile 7 Mechanical
Diesel Repair/Service	Schiff Boat & Rv Storage
Seward Heavy Industrial Power	Storage Option
Seward Heavy Industry	**Marine Surveying**
Fiberglass Fabrication	Ronald Long
Raibow	Resurrection Technologies
Fuel and Lubricants	**Marine Towing**
Petro Marine Services Corp.	Anderson Tug & Barge Co.
Shoreside Petroleum	

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Seward
(continued)

Fuel and Lubricants	**Marine Towing**
Petro Marine Services Corp.	Anderson Tug & Barge Co.
Shoreside Petroleum	**Miscellaneous MIS Service**
Marine Electronics	Alaska Gel Pak
Ac Electric	**Ports and Harbors**
Communications North	Port of Seward
Electric Solutions	**Ship Building/Repair**
Service Electric	Seward Ship's Drydock
	Stevedoring
	North Star Terminal & Stevedoring

Source: McDowell Group Infrastructure Database.

Sitka Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
Sitka	186	283	66	52	9	1	**597**

Source: McDowell Group Alaska Fleet Vessel Database.

Sitka MIS Infrastructure

Travel Lift Capacity (Tons)	60, 70, 88
Dry-dock Capacity (Tons)	850
Tidal Grid Capacity (Tons)	58
Slips available	1326
Wash-down Pad	Yes
Wash-down Water Treatment	Yes

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Sitka

Aluminum Fabrication	**Marine Safety**
Precision Boatworks	Alaska Marine Safety Education Association
Boat Building	Allen Marine Safety Services
Alaska Skiff/Aluminum Boatworks	Pitts Enterprises
Allen Marine	**Marine Surveying**
Boat Watch	Norcoast Marine Surveyors
Sitka Boat Watch	**Marine Towing**
Diesel Repair/Service	Hanson Maritime Company
Buckland Equipment & Welding	**Metal Fabrication**
Diving	Gouker Custom Machining
Southeast Diving Service	Northern Marine Maintenance Co.
Engine Services	Porky's Equipment & Sales
Gary's Outboard Marine Repair	Precision Boat Works
Island Outboard Engine Repair	
Equipment Sales	
Birch Equipment Rental and Sales	

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Sitka
(continued)

Fiberglass Fabrication	**Miscellaneous MIS Service**
Commercial Fish Fiberglass	Attention to Detail Yacht Detailing
Hansen's Marine Repair	Back 2 Nature Professional Yacht Detailing
Fuel and Lubricants	Coastal Collision Repair
Halibut Point Marine	Deppa's Locksmith Service
Petro Marine Services Corp.	Gopher Wood Inc. Building Supplies and Appliances
Sitka Fuel	Southeast Marine Services
Glasswork	**Paint & Marine Coatings**
Southeast Glass Co.	Sitka Painting Services
Marine Electronics	**Ports and Harbors**
Merlin Marine	Fisherman's Quay
Sitka Electronics Lab	Sitka, Port of
Marine Hardware and Supply	**Propeller Repair/Installation**
Allen Marine Sales and Service	Coastal Prop Shop
Buckland Equipment	**Refrigeration**
Carquest Auto & Marine Parts	Pacific Heating and Refrigeration
Murray Pacific Supply of Alaska	Saline Services
NAPA Auto and Marine Parts	**Rental Services**
Orion Sporting Goods	Birch Equipment Rental & Sales
Skookum Canvas Works	Sitka Ready-Mix & Rental Equipment
Southeast Rigging & Tire Supplies	**Shipwrights**
Spenard Builders Supply	Snapp Shipwright Services
True Value Hardware	**Welding**
West Marine	DC Welding
Marine Repair	Lee Craft Welding
Mick's Marine and Machine	Northern Marine Maintenance
Salty Marine	Wes's Welding and Inspection Service

Source: McDowell Group Infrastructure Database.

Valdez Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
Valdez	67	134	22	7	8	3	**241**

Source: McDowell Group Alaska Fleet Vessel Database.

Valdez MIS Infrastructure

Travel Lift Capacity (Tons)	75
Hydraulic Trailer Capacity (Tons)	25
Other Haul-out Method Capacity (Tons)	250
Tidal Grid Capacity (Tons)	120
Slips available	511
Wash-down Pad	Yes
Wash-down Water Treatment	No

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Valdez

Aluminum Fabrication
Valdez Metal Works
Diesel Repair/Service
Harris Sand & Gravel
Diving
R & R Diving Services
Fuel and Lubricants
North Pacific Fuel
Valdez Fuel Co.
Marine Communication
Copper Valley Wireless
Ports and Harbors
Port of Valdez

Source: McDowell Group Infrastructure Database.

Whittier Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
Whittier	82	71	10	4	2	0	**169**

Source: McDowell Group Alaska Fleet Vessel Database.

Whittier MIS Infrastructure

Travel Lift Capacity (Tons)	25
Tidal Grid Capacity (Tons)	70
Slips available	450
Wash-down Pad	No
Wash-down Water Treatment	No

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Whittier

Boat Storage	**Diving**
Anchor Inn	Ace Marine Services
Billings Boat Works	Lazy Otter Charters
Custom Marine Services	**Fuel and Lubricants**
Dojer Service	Shoreside Petroleum
GALL of Alaska	**Marine Repair**
Whittier Parking & Camping	Long's Marine
Whittier Self Storage	On Demand Service
Boat Watch	Viking Enterprises
Charlie Eldridge	**Ports and Harbors**
On Demand Services	Whittier Boat Harbor
Ron Graham	
Whittier Boat Watch	

Source: McDowell Group Infrastructure Database.

Wrangell Fleet, Number of Vessels by Length

Homeport	28′-35′	36′-49′	50′-59′	60′-99′	100′-200′	+200′	Total
Wrangell	75	88	12	17	5	1	**198**

Source: McDowell Group Alaska Fleet Vessel Database.

Wrangell MIS Infrastructure

Travel Lift Capacity (Tons)	150, 300
Hydraulic Trailer Capacity (Tons)	40
Railway Capacity (Tons)	60, 80
Tidal Grid Capacity (Tons)	40, 100
Slips available	660
Wash-down Pad	Yes
Wash-down Water Treatment	Yes

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Wrangell

Diving	**Marine Storage**
Jimmy Nelson	AA Mini Storage
Jordan Buness	Bernie Massin
Steven Johnson	Chad Ritchie
Tim Jewell	Randy Churchill
Engine Services	Royce Cowan
Buness Bros.	**Marine Surveying**
Clay Hamme	Marine Surveyors of SE AK
Dave Miller	Northwest Marine Surveyor
The Bay Company	Pardee Marine Surveys
Fiberglass Fabrication	**Metal Fabrication**
Bill Knecht	Freeman & Sons
J&R Fiberglass	**Rental Services**
Joby's Marine Repair	James' Building & Repair
Keller Marine Repair	Johnson's Building Supply
Glasswork	Massin's Tool Rental
Craig Carlson	Superior Marine

Source: McDowell Group Infrastructure Database.

MIS Providers Identified in Wrangell
(continued)

Marine Electronics	**Sandblasting**
Buness Electric	Superior Marine
NK Electric	Wrangell Boatshop
Marine Hardware and Supply	**Shipwrights**
Ottesen's True Value	Tyler Thompson
SE Auto & Marine	**Welding**
Sentry Marine & Hardware	Dave's Welding
Marine Safety	JA Welding
Ian Newman	Jenkins Welding
	Randy Churchill Jr.
	Svendsen Marine

Source: McDowell Group Infrastructure Database.