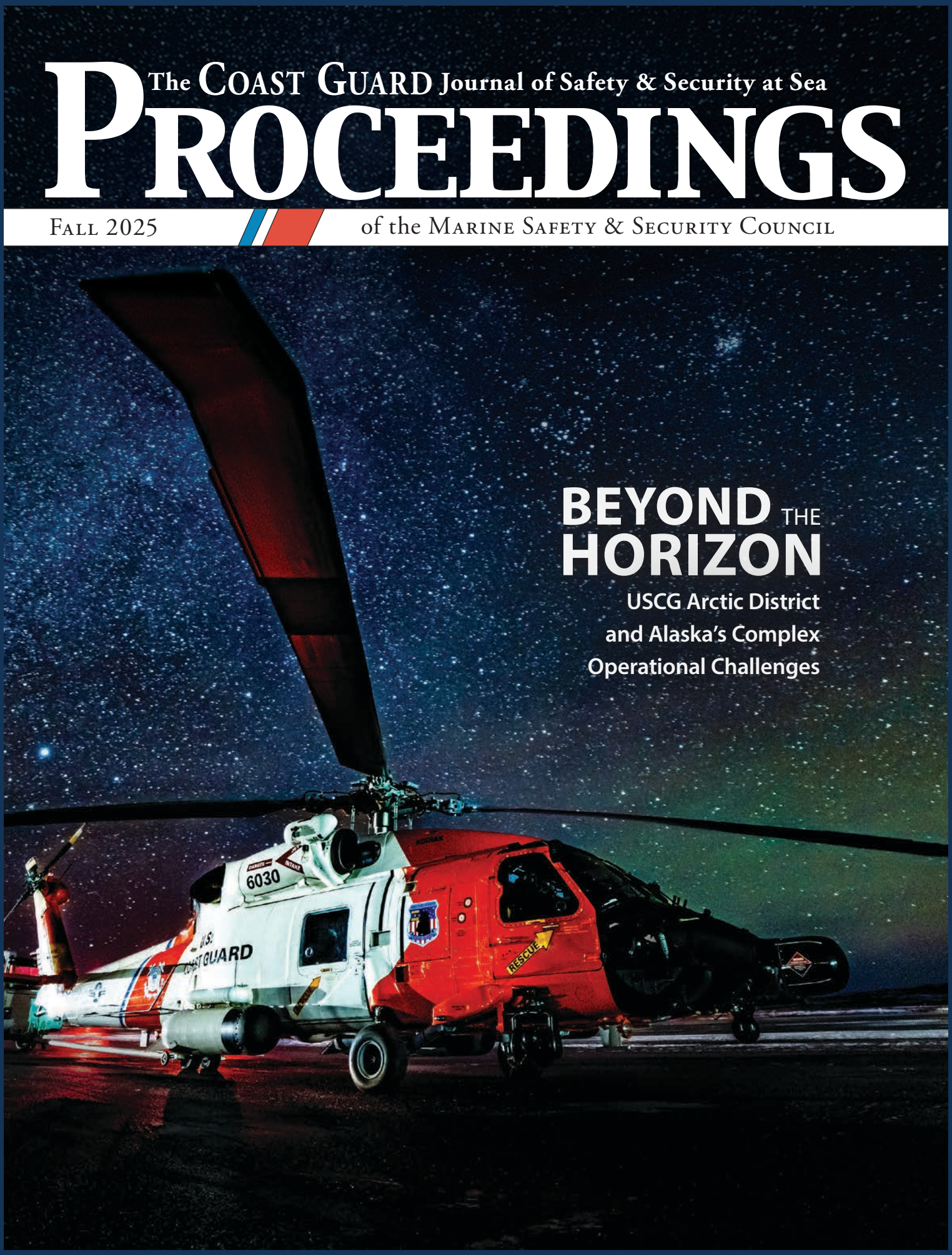
The Coast Guard Journal of Safety & Security at Sea

PROCEEDINGS

Fall 2025 of the Marine Safety & Security Council



BEYOND THE HORIZON

USCG Arctic District and Alaska's Complex Operational Challenges

CGC *Earl Cunningham* (WPC 1159), left, arrived at its homeport of Kodiak, Alaska, for the first time on May 31, 2025, joining the CGC *John Witherspoon*, which arrived in January. Constructed in Lockport, Louisiana, *Cunningham* is the second of six new fast-response cutters that will operate out of Kodiak. The third, CGC *Frederick Mann*, is expected to arrive in October. These three cutters, and three others that will operate in Alaska, will provide greater operational capacity for USCG Arctic District with its expansive, complex area of responsibility.

***Witherspoon* was commissioned in April 2025. *Cunningham* and *Mann* are scheduled to be commissioned in August and December, respectively. Coast Guard photo by Petty Officer 1st Class Shannon Kearney**


U.S. COAST GUARD

PROCEEDINGS

Fall 2025 Vol. 82, Number 3

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Challenges

Critical Operations

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Key People and Strategies

On Deck

On the Cover: Ready to take on Alaska's starry night sky, the MH-60T Jayhawk, like this one from Air Station Kodiak, is a workhorse for USCG Arctic District. An all-weather, medium range recovery helicopter, it supports a variety of missions including search and rescue. Coast Guard photo by LT Scott Kellerman

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Champion's Note

A sincere thank you to CDR John Downing who envisioned this edition a year ago while serving in Anchorage. He was very convincing and instrumental in keeping us on track despite moving to USCG Northwest District.

Commander's Perspective

by Rear Admiral Megan Dean
Commander
Arctic District
U.S. Coast Guard

No longer a distant, frozen realm relegated to the margins of strategic thought, the Arctic is rapidly transforming into a region of increasing geopolitical importance, environmental vulnerability, and economic opportunity. As I complete my assignment as the last U.S. Coast Guard District Seventeen Commander, and the first Commander of the newly renamed Arctic District, I reflect on the incredible opportunity to lead and serve alongside truly dedicated Sentinels. Any season, any time, we are ready to continue building upon the Coast Guard's distinguished legacy of protecting and defending life, natural resources, property, and our nation's sovereign interests

Champion's Point of View

by Captain Christopher A. Culpepper
Sector Commander
Sector Western Alaska & U.S. Arctic
U.S. Coast Guard

As you embark upon reading this incredible edition, you'll find a wide swath of goings-on across Alaska and its surrounding waters. It will guide you through a comprehensive understanding of the immense opportunity that remains here, alongside the certain challenges and complexity of life in the higher latitudes. For some, this is a return to a fond memory, and possibly

and territorial integrity in Alaska and the Arctic.

There is an ever-increasing demand on the U.S. Coast Guard in this dynamic environment. Operating in the Arctic and across Alaska necessitates a unique skillset and robust infrastructure. The tyranny of distance, limited communications, and extreme weather require our personnel to be highly trained, resourceful, and adaptable.

Every incident is a multi-agency event, especially those involving the thousands of annual transits of major ocean-going vessels along the Great Circle route. Our Coast Guard distinguishes itself in Alaska through integration with the communities and through close coordination among agencies with common interests. We unify to capitalize on the scarce resources we all share, and strong relationships across industry facilitate the Marine Transportation System, commerce, economy, and safety.

The strategic importance of the Arctic demands strong international and interagency cooperation. Arctic operations benefit from ongoing joint response planning and operations with Canada, a key relationship for regional stability. Enhanced partnerships with the U.S. Department of Defense are vital to effective force projection and the protection of critical Arctic waterways and resources.

The Arctic region will continue to evolve and, while the Arctic environment presents unique challenges and opportunities, the U.S. Coast Guard's primary objective remains constant—defend the Homeland and assure the safe and free flow of commerce throughout the Marine Transportation System. We must remain vigilant, adaptable, and committed to our core values of honor, respect, and devotion to duty. By embracing innovation, fostering partnerships, and investing in the readiness of our personnel, we can ensure the U.S. Coast Guard continues to lead the way in safeguarding U.S. interests and promoting a safe, secure, and environmentally responsible Arctic. I know you will find the enclosed articles informative and engaging as you discover what it takes to "Coast Guard" in the Arctic District.

a sense of pride, as you helped lay the groundwork for what we continue to build upon across this vast area. For others, this is a venture into the unknown, like so many of us who took that initial, exciting chance to explore, expand horizons, and challenge ourselves. Either way, please find a cultivated collection of stories, perspectives, thoughtful insights, and ideas in the pages ahead. They present a combination of immersive introduction to the region, critical mission support, and impressive accomplishment told in first responders' and operators' own voices. They highlight industry involvement and cooperation with strategic vision for the coming years as securing our borders and protecting our territorial integrity is paramount. These stories also highlight amazing personnel who serve and live selflessly, who embody the core values of Honor, Respect, and Devotion to Duty throughout Alaska—our auxiliarists, reservists, active-duty, civilians, and our families.

I owe special thanks to former-district commander, RADM M. Dean, and former-chief of staff, CAPT John Cole, for the autonomy and encouragement to champion this mighty edition. Collectively, we are grateful for the support and engagement from our elected officials, our external partners at all levels, and the Alaskan citizens, the people of this wonderful land. Without the time and effort of our contributors, and their dedication to narrating this exciting story of Coast Guard life in the Arctic District, we would be unable to convey such a clear and collaborative story—thank you, authors! In fact, we had so many contributors we exceeded the allotment for print, meaning readers can enjoy more Arctic articles by navigating to bit.ly/pro-exclusive.

Welcome aboard, readers, and please enjoy your Alaskan cruise.

The Last Frontier

Puget Sound Maritime Operations

An Alaskan lifeline

by LT Kelly Allison
Marine Inspector
Sector Puget Sound
U.S. Coast Guard

LT Annabelle Gagnon
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U.S. Coast Guard

CDR John Downing
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Northwest District
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In February 1852, a group of settlers founded a small town on Washington state's Puget Sound. Nestled in the Pacific Northwest, Seattle originally served as an excellent location for shipping lumber to San Francisco and enjoyed a robust, albeit smaller, local maritime trade. Over time, Seattle became a major industry port and, with its strategic location and well-developed infrastructure, a vital link in Alaska's supply chain.

A major claim to fame, Seattle served as the final stop for prospectors heading to Canada with dreams of striking it rich during the 1897 Klondike Gold Rush. On July 17, 1897, the S.S. Portland steamed toward Seattle from Alaska with what was reported a ton of gold onboard. The news ignited widespread excitement, drawing 5,000 spectators to the docks. With dreams of "striking it rich," people rapidly flocked to ships headed for Alaska.

By early September, 9,000 people and 3,600 tons of freight had departed Seattle for the Klondike, establishing Seattle as a major maritime hub. Attracting prospectors who saw Seattle as their outfitting center for the journey to Alaska and Canada's neighboring Klondike region, the city's population surged from nearly 43,000 to just under 238,000. Slogans like "Gateway to the Gold Fields," "Gateway to Alaska," and "Gateway to Alaska and the Orient" when ocean liners added routes to Asia, reinforced Seattle's prominence.

In 1949, the Alaska route became the first to adopt modern cargo practices when Alaska Freight Lines introduced van service using tugs and barges to transport containers mounted on trailers that could be uncoupled and recoupled to trucks. This efficient method marked a pioneering move towards modern containerization and by the 1950s, a trade route had been firmly established around Alaska's needs for a steady supply of goods due to its increase in population brought on by the gold rush frenzy.

In 1961, containerization surged, prompting major overhauls at the Port of Seattle. The Alaska Steamship Company and Matson Shipping demolished Piers 44 and 46 making way to create a new Pier 46 to accommodate new freight facilities, opening a second container terminal in 1964. The now-shuttered Sea-Land freight company leased Terminal 5 and introduced specialized container cranes, bridging onshore and offshore transportation modes. Offering 25 acres of container storage, the port firmly established Seattle as a major hub before container shipping became widespread in the Pacific.

Seattle: Alaska's Economic Lifeline

A bustling metropolis, renowned for the iconic Space Needle and Pike's Place Market, as well as a vibrant tech scene, Seattle remains a gateway to the Last Frontier, playing an indispensable role in sustaining Alaska's food supplies, economy, and connectivity. The Port of Seattle serves as a crucial hub for goods and services flowing from the continental United States to Alaska. Cargo movement via water, air, truck, and rail ensures that Alaska's commercial activities are seamlessly connected with the rest of the United States and beyond.

In 2014, the ports of Seattle and Tacoma joined forces to unify the management of marine cargo facilities and business to strengthen the Puget Sound gateway and attract more marine cargo and jobs to the region. The result was the Northwest Seaport Alliance (NWSA), operated by the two port authorities and overseen by elected port commission representatives. The fourth largest container gateway in North America, it merges all marine cargo operations while managing 80% of all trade between Alaska and continental America. In 2022, NWSA handled approximately $70 billion waterborne trade with 180 global partners.

Marine cargo operations at these facilities support

Barges, like this one, are a cost-effective bridge when moving goods. The barge-to-rail interface has been active in the Seattle area since the 1950s. Photo courtesy of Alaska Marine Lines

more than 52,000 jobs and drive almost $14 billion in economic activity within Washington state.[1] Illustrating the strengthening trade relationship between Seattle and Alaska, our domestic terminals handle more than 80 percent of containerized ocean shipments between Alaska and the Lower 48 states. Trade volumes between the two increased by 3.4% in 2023[2] and 0.1% in 2024.[3] Growth rates are expected to increase through 2027 driven by strategic initiatives and expanded cargo operations.[4]

Several key initiatives are fueling this growth. The "Alaska Accelerate" plan by Alaska Airlines aims to enhance global connectivity with new daily non-stop passenger routes from Seattle to Tokyo and Seoul, South Korea, by 2025.[5] It's part of a broader, initial strategy to position Seattle as a global freight and passenger hub, which includes plans for 12 long-haul routes by 2030. Additionally, the Pacific Northwest to Alaska Green Corridor[5] seeks to establish a sustainable maritime route between the Pacific Northwest and Alaska, focusing on low- and zero-emission cruise travel.

Critical infrastructure projects are also underway. The SEA Gateway Project at Seattle-Tacoma International Airport[6] will significantly upgrade the passenger experience and increase capacity. It includes the modernizing Alaska Airlines check-in, ticketing, and baggage areas. Additionally, the Port of Seattle collaborates with Alaska Airlines and Boeing to power all flights with sustainable aviation biofuel, underscoring Seattle's commitment to environmental sustainability.

Seattle not only supports Alaska's economic vitality but also fosters a unique cultural and social bond that enriches both regions. Given that only 18% of Alaskan communities are accessible by road, standard rail and trucking routes are not feasible for delivering goods and services, which makes the Duwamish River central to Seattle's development and broader Pacific Northwest trade. Historically, it served as a crucial waterway for the Duwamish tribe and early settlers, facilitating trade and transport. Today, the river's industrial corridor hosts numerous businesses reliant on maritime transport, making it a key logistical hub for goods bound for Alaska.

Specialized terminals, like Alaska Marine Lines' Seattle terminal, efficiently manage cargo destined for Alaska with streamlined handling practices to meet rigorous schedules. The company has also maximized

cargo capacity by adding tiered racks for shipping containers above the rail cars that are loaded on the barge deck, significantly increasing tonnage for regular shipments to Alaska.

Since there are no direct links between the Canadian and Alaskan railways, integration with road, rail, and air transport is essential. Barges are a cost-effective bridge, and the barge-to-rail interface has been active since the 1950s but operating and maintaining a fleet of 32 barges require round-the-clock oversight. Locations on the Duwamish River offer sheltered access to Puget Sound and convenient maintenance and repair services.

Puget Sound's maritime support sector also includes ship and boat construction, repair and maintenance, marine-related goods, materials, and equipment suppliers, and manufacturing. These services are vital for the fleet, ensuring compliance with regulatory dry docks and necessary repairs. Puget Sound is home to 10 major shipyards capable of dry-docking large barges. Key routes and service facilitate containerized and bulk shipping of essential supplies. Container ships and barges deliver groceries and consumables to Alaska, where grocers and food service companies typically maintain a two-week supply of goods based on storefront and warehouse availability. Surge purchases during the COVID-19 pandemic reduced this supply drastically to about a week's worth, highlighting the dependency on timely arrivals.

Ferry, Freight, and the Future

Established in 1963, the Alaska Marine Highway System (AMHS) provides essential transportation from Seattle to Alaska as well as connections throughout Alaska's coastal communities. Initially integrated with Canada's system, AMHS moved its hub south to Seattle from Prince Rupert, British Columbia, due to ferry system issues and rockslides. Today, AMHS operates a fleet of 11 vessels serving 33 communities transporting passengers, vehicles, and container vans. The company not only transports freight goods, like fresh groceries and products vital to residents and businesses, it offers a cost-effective option for Alaskan seafood companies shipping fresh fish to major hubs for transfer to long-haul truckers bound for Seattle and Los Angeles.

Puget Sound hosts more than 430,000 Alaska cruise passengers annually, with nearly half beginning and ending their cruises in Seattle. Ferry transportation between Bellingham, once considered for the new AMHS hub, and Alaska is notable, with more than 14,000 ferry passengers and nearly 6,000 vehicles making the journey annually.

This system is such an important lifeline that, on occasion, benefits outweigh risks. For instance, a container vessel bound for Anchorage, Alaska, discovered a hydraulic oil leak requiring repair. With limited facilities in Anchorage, the Coast Guard consulted with the Port of Alaska to weigh potential environmental impacts and balance them against the necessity of groceries and supplies. Demonstrating the critical nature of safe transportation for necessary food and essential goods to Alaska, the vessel was allowed to continue with additional protective measures to prevent pollution.

The significance of the Puget Sound area for Alaska's commerce cannot be overstated. It serves as the primary hub for moving goods and people, supporting the commercial fishing industry, and providing essential maritime services. The connectivity facilitated by Puget Sound ensures Alaska's economy is robust, efficient, and well-integrated with national and international markets. Maintaining and enhancing transportation and maritime infrastructures in Puget Sound is imperative for supporting Alaska's continued growth and prosperity.

About the authors:

LT Kelly Allison earned a Bachelor of Science in Intermodal Transportation and Logistics from the United States Merchant Marine Academy and currently serves as a journeyman marine inspector at Sector Puget Sound in Washington. Previous assignments include Sector Houston-Galveston, Naval Flight School, and Air Station Atlantic City.

LT Annabelle Gagnon was an apprentice marine inspector at Sector Puget Sound before recently assuming command of Marine Safety Unit Dutch Harbor, Alaska. She earned a bachelor's in naval architecture/marine engineering from the United States Coast Guard Academy in 2018, followed by tour on CGC Healy and waterways management at Coast Guard Great Lakes District.

CDR John Downing currently serves as the chief of inspections and investigations at Coast Guard Northwest District. Prior to this assignment, he served as the chief of prevention at Sector Anchorage where he oversaw all marine inspections, marine casualty investigations, and waterways management in Western Alaska and the U.S. Arctic.

Endnotes:

1. The Northwest Seaport Alliance. (2025, July 2). *New report finds The Northwest Seaport Alliance, Port of Seattle, and Port of Tacoma support nearly $55 billion in business output, driving the region's economic growth.* The Northwest Seaport Alliance. Retrieved July 16, 2025, from http://www.nwseaportalliance.com/newsroom/new-report-finds-northwest-seaport-alliance-port-seattle-and-port-tacoma-support-nearly-0
2. The Northwest Seaport Alliance. (2024, January 22). *A Strong Finish to 2023 for the NWSA.* The Northwest Seaport Alliance. Retrieved July 15, 2025, from www.nwseaportalliance.com/newsroom/strong-finish-2023-nwsa.
3. The Northwest Seaport Alliance. (2025, January 21). *NWSA 2024 Container Volumes Finish Strong.* The Northwest Seaport Alliance. Retrieved July 16, 2025, from www.nwseaportalliance.com/newsroom/nwsa-2024-container-volumes-finish-strong
4. The Northwest Seaport Alliance. (2021, November 8). *Port Competitiveness Study reveals Canadian federal investments more than double U.S. West Coast ports funding.* The Northwest Seaport Alliance. Retrieved July 17, 2025, from www.nwseaportalliance.com/newsroom/port-competitiveness-study-reveals-canadian-federal-investments-more-double-us-west-coast
5. Alaska Airlines (2024, December 10). *Alaska Air Group introduces "Alaska Accelerate," its three-year strategic plan to deliver $1 billion in incremental profit following combination with Hawaiian Airlines. Alaska Airlines.* Retrieved July 18, 2025, from news.alaskaair.com/dont-miss/investor-day-2024/.
6. Port of Seattle. (n.d.) *SEA Gateway Program.* Port of Seattle. Retrieved July 15, 2025, from www.portseattle.org/projects/sea-gateway-project

Infrastructure at the Edge of the Arctic

by Petty Officer 1st Class Billy Lemos
Marine Science Technician, Incident Management Division
Sector Western Alaska & U.S. Arctic
U.S. Coast Guard

The U.S. Army Corps of Engineers (ACOE) and the City of Nome are working to expand the Port of Nome into the first deep-draft port in the U.S. Arctic. In 2021, following the conclusion of a 2020 feasibility study, Congress approved funding, and the design process began soon after. The project aims to modernize the port to accommodate larger cargo and cruise vessels, enhance logistics for remote Western Alaska, and support critical federal operations. More than a local infrastructure upgrade, the expansion represents a strategic national investment to boost Arctic resilience. Yet as capabilities expand, so do the risk of large-scale incidents, underscoring the need for enhanced preparedness.

Current Infrastructure and Planned Upgrades

The Port of Nome currently consists of two primary areas—the inner harbor and the outer basin, with the latter being the sole focus of the expansion project. The outer basin accommodates larger ocean-going vessels and features a manmade jetty on its western side, on top of which is a causeway road. This road provides access to the port's three docking spaces, West Gold, City, and Crowley, which are situated along the length of the jetty. A petroleum pipeline runs along this causeway and terminates at the newest dock built in 2013. Another breakwater wall without a causeway road forms the eastern side of the basin and creates protected waters.

The current ACOE plan consists of three phases that will extend the western causeway and jetty with an L-shaped addition, creating a new outer basin, and construct a new eastern jetty with a causeway to replace the existing breakwater wall. The improvements on the western causeway will allow for the accommodation of larger vessels, up to 600 feet long, at new docks and extend fuel delivery infrastructure. Extensive dredging throughout the newly created outer basin and waterway entrance will also occur, increasing the Mean Lower Low Water (MLLW) depth. The outer basin will achieve an MLLW of 40 feet while the now expanded inner basin—the port's original basin—will reach 30 feet. The eastern causeway will also include a new 400-foot pier, significantly boosting the port's operational capabilities and readiness for Arctic maritime operations.

MLLW represents the mean depth of the two daily low tides in a given area, providing a critical reference point for safe vessel navigation.

Enhancing Maritime and Environmental Security

Limited infrastructure, extreme weather, and vast distances within the Arctic region create greater vulnerabilities to oil spills, vessel groundings, and other environmental catastrophes. The Port of Nome's expansion represents a step toward addressing these environmental and logistical gaps. By increasing docking capacity and enabling the homeporting of response vessels, the project creates new opportunities to forward deploy vital assets. This includes the potential stationing of a dedicated commercial oil spill removal organization vessel, as well as larger volumes of prepositioned response equipment that can be accessed by a greater variety of vessels. Such resources would significantly enhance the Coast Guard marine environmental response mission by enabling timely and effective mitigation efforts to pollution incidents in ecologically sensitive areas that also support traditional indigenous subsistence lifestyles.

These enhancements align with the evolving risk landscape highlighted in the Arctic Marine Shipping

Assessment, and they underscore the need for proactive planning under frameworks like the Oil Pollution Act of 1990 (OPA90). While OPA90 mandates strict spill response standards, many areas within the Western Alaska Captain of the Port Zone continue to rely on alternative planning criteria's due to the region's operational constraints. Existing response hubs are sparse and often unmanned, with response vessels potentially requiring up to 72 hours to reach an incident site. The Nome expansion helps to close this readiness gap by offering a realistic staging location for oil spill assets and expanding the potential for industry partnerships, regulatory collaboration, and future investments in spill prevention and recovery infrastructure across the Arctic domain.

Advancing Arctic Search and Rescue Capabilities

As Arctic cruise tourism and commercial shipping grow, the need for robust search and rescue (SAR) capabilities, especially for mass rescue operations (MRO), is becoming an increasingly urgent matter. In 2023 and 2024, Nome saw a rise in cruise ship visits with each of these averaging nearly 500 passengers and crew, and some vessels carrying more than 1,700 people. This trend is expected to accelerate after the port expansion, heightening the risk of large-scale SAR events in a region currently with limited response capacity.

Nome's port expansion offers a chance to forward deploy SAR assets such as life rafts or mobile shelters for cruise evacuations that are similar to the Air National Guard's Arctic Sustainment Packages (ASPs). Although meant for stranded military personnel and designed to support only 26 people each, ASPs could be adapted for MROs. To bridge the gap, investment in developing Coast Guard specific sustainment kits would greatly complement survival equipment carried by cruise ships. Expanded infrastructure would also reduce response times through improved staging and operational efficiency for Coast Guard cutters and aircraft.

Operational Challenges and Strategic Mitigation

Nome's dependence on seasonal deliveries poses major challenges for sustained Coast Guard operations. The short maritime weather window requires careful prepositioning of aviation fuel, spare parts, food, and medical supplies to prevent logistical disruptions. This is especially important during late-season surges or severe weather events, as seen in the 2012 diesel shortage that required Coast Guard and Congressional intervention. Long-term homeporting of cutters, aircraft, or personnel would also necessitate major upgrades in housing, healthcare, and maintenance infrastructure. Given the limited success of similar efforts elsewhere, a cautious, flexible approach is advisable. A scalable seasonal presence, supported by robust logistics planning and consistent funding, offers the most sustainable path forward to support Nome's expanding operational role.

Strategic Logistics and National Defense Considerations

As Arctic maritime activity increases, driven by commercial shipping and rising foreign naval presence, the United States must strengthen its ability to project power and sustain operations in the region. An expanded Port of Nome will support forward deployment of the Coast Guard's current fleet of cutters and future Polar/Arctic Security Cutters, reducing reliance on distant ports like Dutch Harbor and easing the logistical burden of Arctic operations.

The port expansion is a strategic milestone for U.S. Arctic operations, advancing economic development, environmental stewardship, and national security. As Arctic activity continues to grow, Nome is positioned to become a critical hub for forward-deployed assets, maritime oversight, and regional logistics. More than a port upgrade, it is a foundational step toward stronger domain awareness, resilience, and long-term American leadership in the far north.

As of February 2025, the project is temporarily paused after all bids for the first construction phase exceeded federal cost limits. Despite the setback, the $662 million project remains a national priority for completion. Federal, state, and local partners are reassessing funding and logistics to restart progress. Completing this effort will require sustained coordination, investment, and interagency collaboration to secure the Arctic's future.

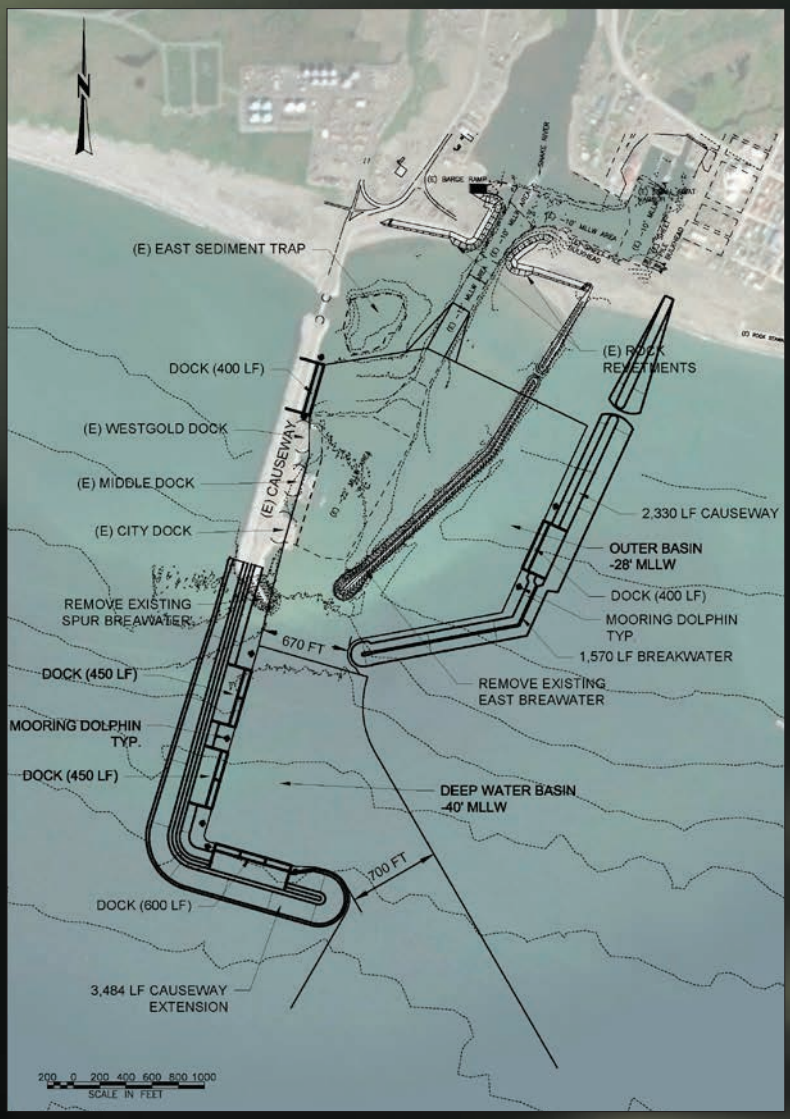
Editor's note: *This article is based on a research paper developed during a Coast Guard-sponsored Waterways Management Industry Training internship hosted by the Arctic Domain Awareness Center. The center is a U.S. Department of Homeland Security (DHS) Science and Technology Office of University Programs Center of Excellence, hosted by the University of Alaska Anchorage. It supports the U.S. Coast Guard and other DHS missions by developing innovative tools, technologies, and knowledge products to enhance Arctic homeland security.*

Jeffrey Libby, MS, ADAC Executive Director, UAA; Jereme Altendorf, Assoc. Director for Arctic Programs & Strategy Implementation, UAA; and Leanne Lusk, MBA, ADAC Federal Research Projects Director, UAA also contributed to this paper.

The views and conclusions expressed in this article are those of the author and do not necessarily reflect the official policy or position of the U.S. Department of Homeland Security.

About the author:

Petty Officer 1st Class Billy Lemos, a marine science technician, is an active-duty Coast Guard member with 17 years of service across the nation, including Washington, Hawaii, Oregon, Texas, and Alaska. He has conducted missions in maritime safety and security, while specializing in environmental response.



The Port of Nome's expansion will increase docking capacity, enabling the homeporting of response vessels and forward deployment of other vital assets. The potential to pre-position more response equipment will strengthen the Coast Guard's marine environmental response capability. Courtesy of the U.S. Army Corps of Engineers

Phase 1A **Phase 2** **Phase 3** **Phase 1B**

Navigating Southeast Alaska with Interagency Collaboration

by LT Jordan Fonville
Rotary Wing Aviator
Air Station Sitka
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In the vast wilderness of Southeast Alaska, where dense forests and towering mountains meet the frigid waters of the Pacific, the natural beauty often hides signs of human activity. Deer Mountain, just two nautical miles south of Ketchikan, stands as a symbol of this rugged landscape. Tucked away in this peaceful setting was an illegally constructed cabin, built 1,000 feet up the mountain, adding a disruption to the area's otherwise untouched environment. The removal of this cabin required collaboration between the U.S. Forest Service's Law Enforcement and Investigations unit, the Ketchikan-Misty Fjords Ranger District, and Coast Guard Air Station Sitka. This task wasn't only a matter of clearing the land—it showcased the use of interagency action for environmental preservation in one of the most remote and ecologically pristine corners of the United States.

I had the pleasure of helping plan and execute this mission. As my first interagency mission in Southeast Alaska, I had questions. They want us to do what? Why us? Why not just have a team on the ground drive to the site?

Previously stationed at Air Station New Orleans, I had never flown a Coast Guard aircraft over terrain taller than 500 feet. This mission required sling-loading several Super Sacks weighing more than 500 pounds through 100-foot-tall trees from a site 1,000 feet up a steep mountain down to a landfill at the foot of that same mountain. With reduced flight time due to the hours-limited aircraft components, we had to make best use of the time that we had by performing four hours of area familiarization prior to and following the mission. This article highlights the unique challenges of operating in Southeast Alaska and why joint operations are sometimes not just the best option but the only option.

This view of the cabin site shows what the U.S. Forest Service encountered during its discovery of an illegally constructed cabin. Due to its sturdy construction, it was believed that the dwelling might still be inhabited, but further investigation revealed that the cabin had been unused for more than 15 years. U.S. Forest Service photo by Special Agent Joe Inman

Not Your Ordinary Sortie

This mission had been months in the making. The original deadline to complete the mission was August 2024. However, through weather cancellations and unavailability of either pilots, aircrew, aircraft, or even the Forest Service ground team, the final date chosen was September 27. A goal along with the removal of the cabin was area familiarization. Due to the dynamic nature of conducting search and rescue (SAR) here, every pilot is required to visit every major city and village between Yakutat and Ketchikan—two towns nearly 364 nautical miles apart—at least once a year.

Moreover, Coasties working in command centers in Juneau, members of Coast Guard units in Ketchikan, and members of government agencies—like the Forest Service—also require area familiarization. That leaves quite a few familiarization flights needed with limited hours. With several months of planning, we were given eight hours to conduct area familiarization for myself, a command member of another Coast Guard unit, and Forest Service Special Agent Joseph Inman, all while assisting the agency with removing the cabin to the city's landfill. We had to get creative.

To prepare for a mission with many unknowns, we

Before its removal, the cabin site featured a fenced perimeter, a rainwater filtration system, a garden, an outhouse, an outdoor seating area, and numerous other elements that indicated it had been designed for long-term use. The cabin itself included windows, a full-sized locking entry door, and a tarp to shield the walls and roof from water damage. U.S. Forest Service photo by Special Agent Joe Inman

had to ask if we were truly the best asset for this mission. To answer that question we asked Inman, the resident expert. I started by asking him why the cabin must be removed at all.

"The Forest Service manages public land, and people can't just build structures on public land as they see fit," Inman said in an interview.

This may seem straightforward, but what set this case apart was that the structure in question was constructed prior to the Forest Service's management of the land, and therefore, before such construction was prohibited.

"Once we took it over, it was our responsibility to remove it," Inman said. Furthermore, this cabin wasn't just a makeshift shed. It was a cabin built to provide year-round shelter. "I'd never seen a cabin this well-built or to such an extent," he said. "It was multiple rooms. It was built on a very solid foundation. I got up on the roof and you could probably fit five or six people on the roof and it would be solid."

The cabin was built in a remote location requiring Forest Service agents to hike a half-mile along a trail and then bushwhack another half-mile down Deer Mountain. Just a few feet below the cabin site was a roughly 400-foot drop that added to the already hazardous conditions. Inman reached out to Air Station Sitka for assistance because he knew the MH-60T's sling-loading capabilities were the only safe method for dismantling and removing the cabin.

The plan was to fly from Air Station Sitka to Ketchikan's landfill, where we would stage our gear for our later mission, board our additional passengers, then conduct area familiarization before returning to the

landfill for the cabin removal. The straight-line distance to this landfill site was 159 nautical miles, which would typically take 90 minutes to reach under the MH-60T's standard cruise profile. However, with the need for area familiarization, the estimated travel time was closer to two hours. The cabin removal was expected to take three hours, with a planned refueling required midway through the operation and a second refueling for the return trip to Sitka. Despite the numerous logistics involved, the mission remained relatively straightforward.

Further consideration was given to expected Marginal Visual Flight Rules (MVFR) conditions for the day. MVFR criteria refer to either a cloud layer between 1,000 and 3,000 feet and/or a horizontal visibility of three to five statute miles. Using weather cams immediately prior to departure, we were able to see that the intermittent cloud layer sat right at 1,000 feet, which happened to be the altitude of our cabin site. In addition to the cloud layer, there was an upsloping wind that could enhance visibility, but might also force us into a challenging downwind hover.

The ground team at the cabin removal site captured an image of the MH-60T. Initially, the cloud layer presented challenges, preventing safe operations at the necessary altitude. U.S. Forest Service photo by Special Agent Joe Inman

We knew weather would be a factor upon arrival since we would need to hover at approximately 200 feet above the site to sling load with our 200-foot pendant. Sling-loading involves attaching a high-capacity line, known as a pendant, to the underside of a helicopter, enabling it to carry loads weighing up to 6,000 pounds. The length of a pendant can vary based on mission requirements. Given the presence of trees exceeding 100 feet in height and steep, sloping terrain, a 200-foot pendant was deemed the most suitable choice for our mission.

Due to the remoteness and steepness of the cabin's location, there needed to be a Forest Service team on the ground at the cabin to load the cabin debris and at the landfill to unload it. Though the cabin site team was able to safely maneuver to the site, the density of the forest would not allow for sling-loading through the trees. To compensate for this, the ground team created a 50-by-50-foot clearing near the site for us to load and unload our pendant. Even with the clearing, the team would need to brace itself along the 30-degree mountainside while the hurricane-force winds barreled down on them from the helicopter above. With all preparations in place, it was time to execute the mission.

Making for the Most Efficient Use of Resources

We departed Air Station Sitka en route to the landfill in Ketchikan. Instead of heading straight there, we knocked out a few items of area familiarization. The route followed a path past Medvejie Lake and Baranof Lake, down to Port Alexander, over the waters of Sumner Strait, over the towns of Whale Pass and Coffman Cove, and finally towards Ketchikan.

The purpose of visiting these small towns is to practice what we call a manual approach to a controlled hover (MATCH) into each town. Conducting a MATCH allows us to fly into villages in the event of restricted visibility, which is a frequent occurrence in Southeast Alaska and justifies the need for this capability. Conducting a MATCH in these conditions is necessitated by high-gain missions like SAR or a nonmaritime medevac from an otherwise remote town without a dedicated SAR team or medical services. Conducting MATCHs into these towns—and many others—at least once a year is required for all Air Station Sitka pilots.

We continued to the landfill and onboarded Inman and a Coast Guard member from Coast Guard Base Ketchikan for continued familiarization. This familiarization allowed us to explore areas of interest that would otherwise be inaccessible to both Forest Service agents and the Coast Guard through conventional methods. Some of these areas included the town of Metlakatla, Behm Canal, Rudyard Bay, and many points of particular interest to the Forest Service on Revillagigedo Island.

"This is the only forest, generally, in the National Forest System where you have this much overlap between National Forest System land and U.S. Coast Guard," Inman said after he was asked what information the agency gleans from aerial familiarization. "This is only a small portion of a 17 million-acre forest, but ultimately it's that perspective that enables us to do our

jobs by being able to see things from different angles."

Air Station Sitka's aerial capabilities are particularly valuable, as the Forest Service has only one other aircraft available for aerial surveillance—a de Havilland Canada DHC-2 Beaver. This aircraft is stationed in Juneau and is shared among nine Forest Service districts, making Air Station Sitka an essential resource.

I asked Inman what he thought the greatest benefit of the Forest Service-Coast Guard collaboration in Southeast Alaska was. "The overall mission success and execution that we can have working together is multiplied many times versus operating independently in this area," he said. "Between air and water, between cutters and the stations throughout Southeast [Alaska] we cover a lot of area. That collaboration only further enables us to be more successful."

After the familiarization was complete, it was time to shift gears to the primary mission of the day: cabin removal.

We arrived at the landfill with the hope that we would be able to go right into cabin removal. There was one problem, though. The weather seemed to be worsening, with a dense cloud layer forming at 1,000 feet—the same altitude as our cabin site—slightly obscuring its visibility. What made matters worse is that there appeared to be no break in the cloud layer that we would be able to take advantage of. In other words, the mission we set out to accomplish would likely be delayed once again—possibly for good. After conducting a risk assessment to determine our next move, we noticed a weather window and attempted to gain visual contact with the site. Fortunately, we were able to gain visual contact and elected to take advantage of the window by executing the original plan.

Order of Operations

It was crucial that we stuck to the plan. We needed to take advantage of what appeared to be a short weather window, the approaching sunset, fuel constraints, and our own crew rest requirements. With a brief delay on deck at the landfill, we now only had enough fuel to conduct one operation before departing for fuel, which worked in our favor. We left one crewmember and all four of our empty cargo nets on scene to help prepare the first few loads of debris while we got just enough fuel at Ketchikan International Airport to remain within acceptable power margins. While we got fuel, our on-scene crewmember assisted the Forest Service ground team with properly rigging four separate cargo nets, each one with a 500-pound Super Sack, for the flight down to the landfill.

The plan was to drop our 200-foot pendant through the 50-by-50-foot clearing in the trees to the cabin site and pick up the first load. Instead of dropping the load, we would have a ground team at the landfill unhook and rehook the cargo nets from and to the pendant. We did this so each bag could be returned to the site and prepared for pickup while the other loads were emptied. We expected about seven loads, so we did this process for the first three loads, dropping empty cargo nets each time and grabbing full cargo nets for unloading at the landfill.

Inman, still in the aircraft, was an excellent asset communicating directly with both ground parties and providing updates that streamlined progress on both ends. By the time we were ready for the fifth load, the three cargo nets we had dropped off first were properly rigged and ready to be sling-loaded. With all the efficiencies created with forethought and proper planning, what was expected to be a three-hour operation only took two hours. We landed at the landfill after our final cargo net was emptied, dropped off Inman, gathered our sling-load gear, returned to the site to hoist up our crewmember, departed for Ketchikan International for dinner, and had enough gas to get home. After three separate sorties and a total of seven-and-a-half hours of flight, we arrived back home.

Post-Flight Debrief

What began as a simple cabin removal request from a federal partner agency evolved into a successful interagency mission with multiple achievements. Each agency initially had a distinct objective, but given the operational challenges in Southeast Alaska—along with the complexities of coordinating aircraft maintenance schedules and finding common availability—we were able to efficiently consolidate several missions into one operation. Specifically regarding the cabin removal, Inman said, "I think overall, the operation went as smooth as it possibly could have, logistically, weather-wise, and communication-wise."

As always, we assess areas for improvement to enhance future efforts, but it is equally valuable for an agency to leverage training to successfully carry out an event or operation that might occur only once. This joint operation between the Forest Service and Air Station Sitka showcased the enhanced capabilities achieved through effective interagency collaboration. It may have been the first of its kind, but for the betterment of Southeast Alaska and our federal, state, and local service, it will not be the last.

About the author:

LT Jordan Fonville was born in Clinton, Maryland, and graduated from the U.S. Coast Guard Academy in 2018. He received his Wings of Gold in 2021 and serves at Coast Guard Air Station Sitka, Alaska. He and his wife have three children.

Civil Engineering Support in the Last Frontier

by LT Kyle Hansen
Construction Branch Chief
Civil Engineering Unit Juneau
U.S. Coast Guard

CDR Tyler Heffner
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The fishing industry in Alaska generated an astounding $6 billion in economic output in 2024.[1] It is a big part of life in the Last Frontier, and if you find yourself in one of Alaska's remote cities, towns, or villages, chances are most people you meet will have a family member or friend who works in this industry.

It is a dangerous job, with Alaskan fishermen braving the cold, remote waters of the Bering Sea or Gulf of Alaska, enduring high seas, treacherous winds, and freezing weather to haul in their catches. In the midst of this, the Coast Guard fulfills its responsibilities to rescue those in distress and enforce federal fishing laws to help ensure the industry survives for generations to come.

While heroic rescue missions rightfully attract media attention, it's easy to gloss over the fact that no Coast Guard mission would be possible without the houses, offices, communications towers, hangars, runways, and piers that make up the Coast Guard's vast shore facility portfolio. As the Shore Infrastructure Logistics Center (SILC) mantra states: Every Coast Guard mission begins and ends at a shore facility.

Enter Civil Engineering Unit (CEU) Juneau.

Planning and Real Property

CEU Juneau is SILC's service provider in the Last Frontier, supporting Alaskan Coast Guard units with a broad portfolio of services including planning, real property, environmental, design, and construction management business lines. The unit manages more than 3,000 real property assets across the state, valued at more than $8.8 billion. Real property includes all land, buildings, and structures, both owned and leased. Some of these assets are well-known and used daily. For example, fixed aids to navigation marking shoal water in narrow

Located in Port Clarence, Alaska, the Port Clarence Long Range Navigation Station was a Coast Guard facility and part of the LORAN-C navigation system that provided precise location and timing information for maritime and aviation navigation. The facility was decommissioned in 2010, and the land was later returned to the Bering Straits Native Corporation as part of a land reclamation effort. Coast Guard photo by Christina Howard

The Rescue 21 communications site in Deception Hills near Glacier Bay, Alaska, provides state-of-the-market technology, enabling the Coast Guard to execute its search and rescue missions with greater agility and efficiency. Coast Guard photo by Andrew Klausner

straits, communications towers that help relay distress calls, piers and runways used by operational units, and housing supporting Coast Guard members and families are all real property. Some assets have been shuttered but still require accounting and management, like the legacy long-range navigation (LORAN) stations located throughout Alaska.

LORAN stations emitted hyperbolic radio frequencies so mariners could accurately determine their position and were critical to the safe navigation of vessels from 1940 to 2010. In Alaska, stations were located in many remote locations, including St. Paul, Sitkinak, Attu, and Port Clarence. Although the radio transmissions have been discontinued and the facilities disestablished, the Coast Guard retains ownership and is responsible for the land and buildings at these sites.

Real property management for CEU Juneau's other assets includes lease and/or easement management, identifying and divesting of assets excess to the Coast Guard's needs, and occasionally acquisition of new property to support new or expanding missions. Facility asset managers are the first touch point between local units and the CEU, and work closely with the real property team in identifying when new construction or major maintenance projects are needed to support continued and uninterrupted operations.

Falling into the purview of CEU Juneau's planners is evaluating which facilities are needed to accomplish Coast Guard missions in Alaska. The planners investigate where best to locate new assets in the region, as well as how best to recapitalize existing facilities that have reached the end of their operational lifespans. These time-intensive efforts lay the groundwork for getting projects on a budget request, and include reviews of land use, accessibility, space requirements and functional layout, as well as environmental considerations.

Environmental Support

The Coast Guard has a responsibility to protect the environment. The Environmental Management Branch (EMB) at CEU Juneau aids in this responsibility in Alaska. While primarily focused on executing environmental compliance and restoration projects, EMB also provides support for construction projects and local units as it relates to both environmental compliance, as well as historic and cultural resources.

Coast Guard Base Kodiak, like many of the Coast Guard sites in Alaska, started off as a naval installation during World War II. Naval Air Station Kodiak opened in 1941 and officially became a Coast Guard

base in 1972. The historic nature of the base and its many original buildings are protected by the State Historic Preservation Offices, which exists to protect America's historic and archeological resources. Preserving historic sites and resources can be challenging, which is why CEU Juneau's Environmental Management Branch offers guidance to local units with regards to managing intricate historic and cultural resource concerns. This preserves the historic significance of our facilities, and ensures our heritage is passed on to future generations.

However, the bulk of the Environmental Management Branch's duties are remediation projects. Portions of land that currently or historically supported Coast Guard operations, like the LORAN sites mentioned earlier, have contamination stemming from historic land use practices dating back to the 1940s that is in various phases of remediation. This includes petroleum contamination in soil, asbestos and lead that were commonly incorporated in older building construction, and emerging contaminates used at a time when their effects on the environment were not fully understood. The federal government has a congressionally mandated responsibility to clean these sites.[2]

But like many endeavors in the Last Frontier, completing remediation work in Alaska is uniquely challenging. Most of the remediation work is the removal of soil contaminated with petroleum or other harmful chemicals. By removing the soil, we can ensure the contamination doesn't spread to new plots of land, or to the marine environment. During excavation in a potentially contaminated area, all soil must be assumed contaminated until proven otherwise. All potentially contaminated soil excavated must be carefully stockpiled and protected. In most cases, thick polyethylene tarp liners are used to surround and contain the material while tests are conducted.

The lack of a comprehensive road system means these tests are often transported off site by air, which can delay results for several days or even weeks. While waiting for test results, the stockpiles must be properly managed to ensure the harsh Alaskan weather does not break the seal protecting the surrounding environment from the potentially contaminated material within the liners.

However, if tests then come back confirming contamination, there is no landfill in Alaska that is certified to accept, handle, or clean contaminated material. The soil must be placed in specialized, 100 cubic foot containers called Super Sacks and shipped to specialized facilities able to receive this material in the Lower 48 via barge.

Between stockpiling requirements, management during the delay in test results, and the high price of transport, costs to clean our sites can quickly balloon as the volume of contaminated material rises and must be accounted for in the planning stage.

While demanding, environmental restoration projects are successfully addressing the federal government's historical contamination in Alaska—step by step and Super Sack by Super Sack—through careful planning and close collaboration with regulatory authorities.

Design and Construction Management

CEU Juneau's regional execution branch, which handles shore maintenance and repair projects, is likely its most prominent mission. The Coast Guard operates under a tri-level shore facilities and infrastructure maintenance model that includes day-to-day operational maintenance, major maintenance done by regional engineering units, and new construction centrally managed by the Facilities Design and Construction Center (FDCC). These three elements are divided into operational level maintenance (OLM), depot level maintenance (DLM), and procurement, construction, and improvement (PC&I)

Operational units are responsible for operational level maintenance. These are repairs that can be done with technicians already on site, typically regular maintenance or small repairs. Regional CEUs are, among other

Steam lines are repaired at Coast Guard Base Kodiak in Alaska. Civil Engineering Unit Juneau's Environmental Management Branch provides environmental restoration and compliance services to support Coast Guard operations throughout the state. This includes managing environmental concerns, ensuring compliance with regulations, and addressing issues related to energy conservation and hazardous materials. Coast Guard photo by Brian Goettler

things, responsible for depot level maintenance (DLM). These are large repair efforts and can be as complex as a full overhaul or replacement of degraded systems. The Facilities Design and Construction Center (FDCC) oversees the procurement, construction, improvement, recapitalization, and development of new buildings, piers, and other assets.

DLM projects, CEU Juneau's bread and butter, can vary in size, from roof repairs on barracks buildings, to major maintenance on piers. What all the DLM projects have in common is a goal to support continued operations. While maintenance on a pier may not be exciting to some, it's critical to extending the operational life of the asset. Other DLM projects, like the recent work on the Rescue 21 Alaska communications sites, have a much more obvious impact.

Over the past few years, CEU Juneau replaced the aging power generation systems on 22 remote Rescue 21 sites that provide mariners in Alaskan waters an emergency communications system. Following the installation of the new more reliable power generation systems, there was an immediate 20% decrease in "near miss" search and rescue cases in Alaska, according to internal unit records.

While the Coast Guard has six regional CEUs executing DLM projects across the country, CEU Juneau's designers and construction managers deal with a unique combination of challenges in Alaska. First, in addition to addressing the primary reason the project was initiated, designers need to consider wind, snowfall, freeze and thaw cycles, salt air and humidity, and tidal and seismic concerns to ensure repairs will remain functional for their expected service life. Most of coastal Alaska is within the International Building Code's zones D and E, requiring extra seismic design considerations due to earthquake risks. There are also unique locations like Valdez, which averages well over 300 inches of snow per year. These factors must be taken into consideration when designing a project.

Alaska's remote nature leads to more concerns. Most Coast Guard units are not on the road system, so nearly all materials must be transported via barge, driving up delivery time and costs. Some Coast Guard sites don't even have barge access and require a helicopter airlift to deliver personnel and material. These remote sites also have a small seasonal weather window where safe access by helicopter is possible, leading to more planning challenges, and increased costs.

Finally, finding qualified personnel is also a challenge. The construction industry is facing a significant talent shortage, with more than 250,000 positions unfilled nationwide, according to the Bureau of Labor Statistics' 2024 Annual Report. For the contractors we work with, finding qualified and experienced laborers and managers is not easy. Locating project and quality control managers, site safety officers, and superintendents that are either already in Alaska, or willing to move to the remote state is difficult and expensive. These factors require intentional planning and drastically increase construction costs when compared to similar projects in the Lower 48.

Despite these unique challenges, the CEU Juneau design and construction branches, supported by a highly qualified contracting branch, execute projects throughout the state. In the past year, they repaired utility lines on Coast Guard Bases Ketchikan and Kodiak, repaired roofs in Valdez and search and rescue aircraft hangars in Sitka, along with a litany of other projects.

Conclusion

CEU Juneau, with construction, design, environmental, real property, and planning branches, plays a vital role in supporting Coast Guard operations across Alaska. We ensure the rescue swimmer has a home and a roof over their head when they return from a mission. We ensure the planes and helicopters have a tarmac to land on, and a functional hangar to conduct repairs in. We ensure the cutters have fixed aids to navigation to get them to structurally safe piers to moor up on. We ensure the communications system connecting the rescuers and those needing rescue is operational, ensuring coordination with assets in the area. Behind the scenes, CEU Juneau's hard work ensures that Coast Guard facilities and infrastructure are optimized to support operators and operations, ultimately serving the American people and the maritime industry effectively.

About the authors:

LT Kyle Hansen serves as the construction branch chief at Coast Guard Civil Engineering Unit Juneau. There, he leads the team responsible for the execution of $30 million in annual depot level maintenance throughout the state of Alaska. He graduated from the U.S. Coast Guard Academy with a Bachelor of Science degree in mechanical engineering in 2020.

CDR Tyler Heffner serves as the commanding officer of Coast Guard Civil Engineering Unit Juneau. He is responsible for the major maintenance, environmental restoration, capital planning, and real property management programs of an $8.8 billion portfolio of shore assets spanning the state of Alaska. He graduated from the U.S. Coast Guard Academy with a Bachelor of Science degree in civil engineering in 2006 and also holds a Master of Engineering degree from Oregon State University.

Endnotes:

1. National Marine Fisheries Service. "Alaska Seafood Snapshot." National Oceanic and Atmospheric Administration, 2024, https://www.fisheries.noaa.gov/s3//2024-10/ak-seafood-industry-snapshot-10-31-2024-afsc.pdf
2. 42 U.S.C. Chapter 103, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). https://uscode.house.gov/view.xhtml?path=/prelim@title42/chapter103&edition=prelim

Marine Exchange of Alaska

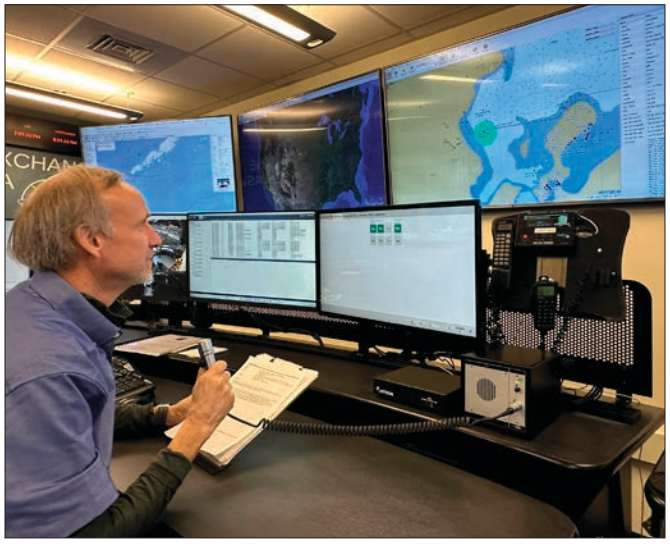
Drawing a definitive line in the sand

by Kimberly Valverde
Communications Director
Marine Exchange of Alaska

Steve White
Executive Director
Marine Exchange of Alaska

The phrase "a line in the sand" has been used throughout history to set boundaries between acceptable and unacceptable. The Marine Exchange of Alaska (MXAK), a nonprofit organization founded in 2001, has established a line in the sand by defining sufficient and responsible maritime domain awareness in Alaska. With critical coverage gaps identified, MXAK has dedicated the past 25 years to building and maintaining a vast monitoring and communication system to protect Alaska's maritime environment, economy, and the mariners who operate across its challenging waters.

In 2001, the state of Alaska supported the MXAK's mission with a $646,000 grant to develop an emergency prevention and response system that includes a vessel location system, an email-based emergency communications system, and a marine emergency logistics and services database. This funding was the acorn that rooted a mighty oak. Since then, MXAK has steadily grown, incorporating the best available technology, leveraging contributions from the maritime community, the federal government, and Alaska to develop a best-in-class, around-the-clock maritime operations center and a robust network of marine safety sites.



A maritime information specialist monitors operations and broadcasts necessary safety alerts via VHF-FM from MXAK's 24/7 Maritime Operations Center in Juneau, Alaska. Photo courtesy of Marine Exchange Alaska

The technologies installed on marine safety sites allow MXAK to track vessels, collect and transmit safety messages and environmental conditions, monitor VHF-FM traffic for distress calls, and communicate crucial information to prevent and respond to maritime disasters.

MXAK's marine safety site capabilities include:

- ***137 AIS receivers*** that provide the highest standard of reliability and lowest latency for vessels operating near shore to detect potential incidents and initiate a timely response. In lieu of building a separate AIS network in Alaska, the Coast Guard has contracted MXAK for access to its terrestrial AIS data since 2008.
- ***74 AIS transceivers (ATONs)*** that provide real-time broadcasts of weather conditions, potential hazards, and navigational warnings. ATONs are globally recognized as the best available technology to disseminate information.
- ***58 digital selective calling receivers*** that transmit and relay VHF CH-70 signals to the 24/7 maritime operations center.
- ***22 VHF-FM transceivers*** that receive distress calls that the Coast Guard's Rescue 21 System may not have detected due to range limitations or degraded service, increasing Alaska's communication capabilities.
- ***71 independent terrestrial weather stations*** that fill gaps and provide real-time environmental conditions to mariners, the National Weather Service, and international weather model providers.
- ***14 mobile marine safety sites*** that collect and transmit real-time weather conditions from vessels navigating the most remote areas. This provides data to regions where observations have previously not existed. All of the Alaska Marine Highway System's ferries and several industry partner vessels are equipped and participating in the mobile safety sites.
- ***24/7 monitored two-way satellite communications radio*** that allows the maritime operations center to contact vessels with similar equipment, including

many operating in the Bering Sea and beyond.

Information gathered from marine safety sites and satellite tracking services are directed to MXAK's 24/7 Maritime Operations Center where maritime information specialists actively monitor vessel traffic, communicate with operators, and disseminate critical information. A visit to the operations center will quickly reveal the pride and professionalism MXAK employees have in their shared mission. Using the latest technologies, the operations center identifies anomalies, investigates, and if necessary, alerts responders. Often the first line of defense in preventing major marine casualties or being the first—and sometimes only entity—to hear and respond to mayday calls, they understand the stakes and the importance of reducing the time between problem identification and response.

In mid-November 2024, a marine safety site located on Kodiak Island's Elbow Mountain picked up a distress call from M/V *Yahoo* in Marmot Bay off Kodiak Island. The MXAK Maritime Operations Center received the distress call and collaborated with the Coast Guard, which deployed a helicopter to rescue the three mariners onboard. The disabled vessel was never recovered. This case could have had a much different outcome if the *Yahoo*'s distress call had not been received.

Although response incidents validate the need for supplemental coverage, MXAK's priority has always been prevention. The staff of 33 contributes broad skillsets and represents diverse backgrounds, including more than 150 years of former Coast Guard service. From regulatory specialists offering compliance services, to software engineers, field technicians, and data analysts, the crew has created a maritime safety net from the ground up. Their shared commitment to providing the best available services helps prevent maritime incidents and save lives.

Prevention starts early. MXAK's regulatory compliance department helps members navigate complex federal, state, and international maritime safety, security, and environmental regulations. The goal is to not just meet regulatory requirements, but to identify practical solutions unique to Alaska's environments. The organization also provides vessel and facility security and response plans, audits, and various training. By working with multiple agencies and industry partners throughout Alaska, the Marine Exchange can share best practices, develop consistency and awareness. MXAK's compliance staff also works with the National Park Service (NPS) and the cruise ship industry to conduct third-party environmental audits on large cruise ships operating in Glacier Bay National Park. Selected at random, an unannounced compliance officer boards cruise ships while underway in park boundaries, conducts audits and reports findings to the NPS. The program has been an enormous success showcasing cooperation between industry, the federal government, and a nonprofit organization.

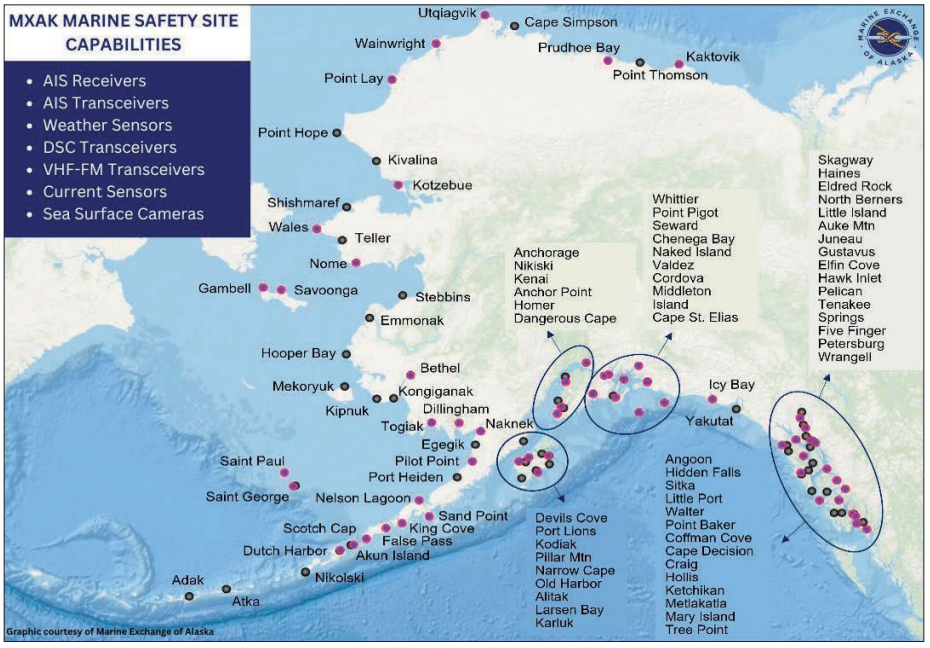
MXAK shares information and works closely with other national marine exchanges, some that have operated for more than 175 years. Together, the organizations form the Maritime Information Services of North

Technologies installed on marine safety sites allow MXAK to track vessels, collect and transmit safety messages and environmental conditions, as well as monitor VHF-FM traffic for distress calls, and communicate crucial information to prevent and respond to maritime disasters. Photo courtesy of Marine Exchange Alaska

America, which identifies trends, shares best practices between North American ports, and is frequently consulted for national maritime insights.

Conclusion

Despite all this, the work is not done. There are still significant areas of Alaska—particularly in the Bering Strait and Arctic regions—that lack capabilities that other parts of the state rely on. To address these shortcomings, MXAK and its partners have joined forces to develop Arctic Watch. The objective is to build out technology and employ local knowledge and expertise to strengthen maritime domain awareness in a region experiencing increasing traffic, growing national security significance, dynamic environmental conditions, and threatened food security. Plans include installation and capability upgrades of 12 marine safety sites in the next three years.



Marine Exchange Alaska maintains a network of more than 150 marine safety sites throughout Alaska. These sites provide coverage to mariners operating in some of the most remote waters around the state. Photo courtesy of Marine Exchange Alaska

This work cannot be done alone. Anyone who has operated in Alaska understands the challenges that come from its vastness, remoteness, and limited response assets. Neither the federal government, Alaska, or the maritime industry alone have the means to provide coverage for Alaska like what's available in the Lower 48 states.

Field technicians unload equipment at a remote marine safety site in Southeast Alaska. The site provides a lifeline for mariners in distress and for marine information specialists at Marine Exchange Alaska's 24/7 Operations Center to pass crucial information to mariners. Photo courtesy of Marine Exchange Alaska

The answer to meeting those needs is to work together to maximize limited resources. Uniting all the players to address common goals ensures that more can be done with less. Strong partnerships are the catalysts for success, and MXAK's ability to serve as a leading source of maritime domain awareness in Alaska will continue to rely upon support and input from industry and government.

As technologies evolve, MXAK remains nimble and forward-leaning. Governed by a volunteer board of industry members, seasoned mariners, and Alaska residents, the organization serves as a conduit between government and the maritime community to develop innovative solutions for the unique, ever-changing challenges found only in Alaska. One thing that remains constant is MXAK's commitment to Alaska and its firm stance on the side of the line that signifies progress and promotes safe, secure, efficient, and environmentally responsible maritime operations.

About the authors:

Kimberly Valverde joined the Marine Exchange of Alaska in 2020 and serves as communications director. Originally from California, she moved to Alaska in 2012 and has spent more than a decade working in the maritime industry.

Retired Coast Guard CAPT Steve White is the executive director of Marine Exchange of Alaska. He joined MXAK in 2021 after a 31-year Coast Guard career, serving seven tours in Alaska and retiring as sector commander and captain of the port for Southeast Alaska.

Operational Advantages

Leveraging Alaska's remoteness

by Kristina Arsenault
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Marine Safety Unit Valdez
U.S. Coast Guard

Joseph P. Baczkowski, *Captain USPHS*
Acting Director
N-Wave
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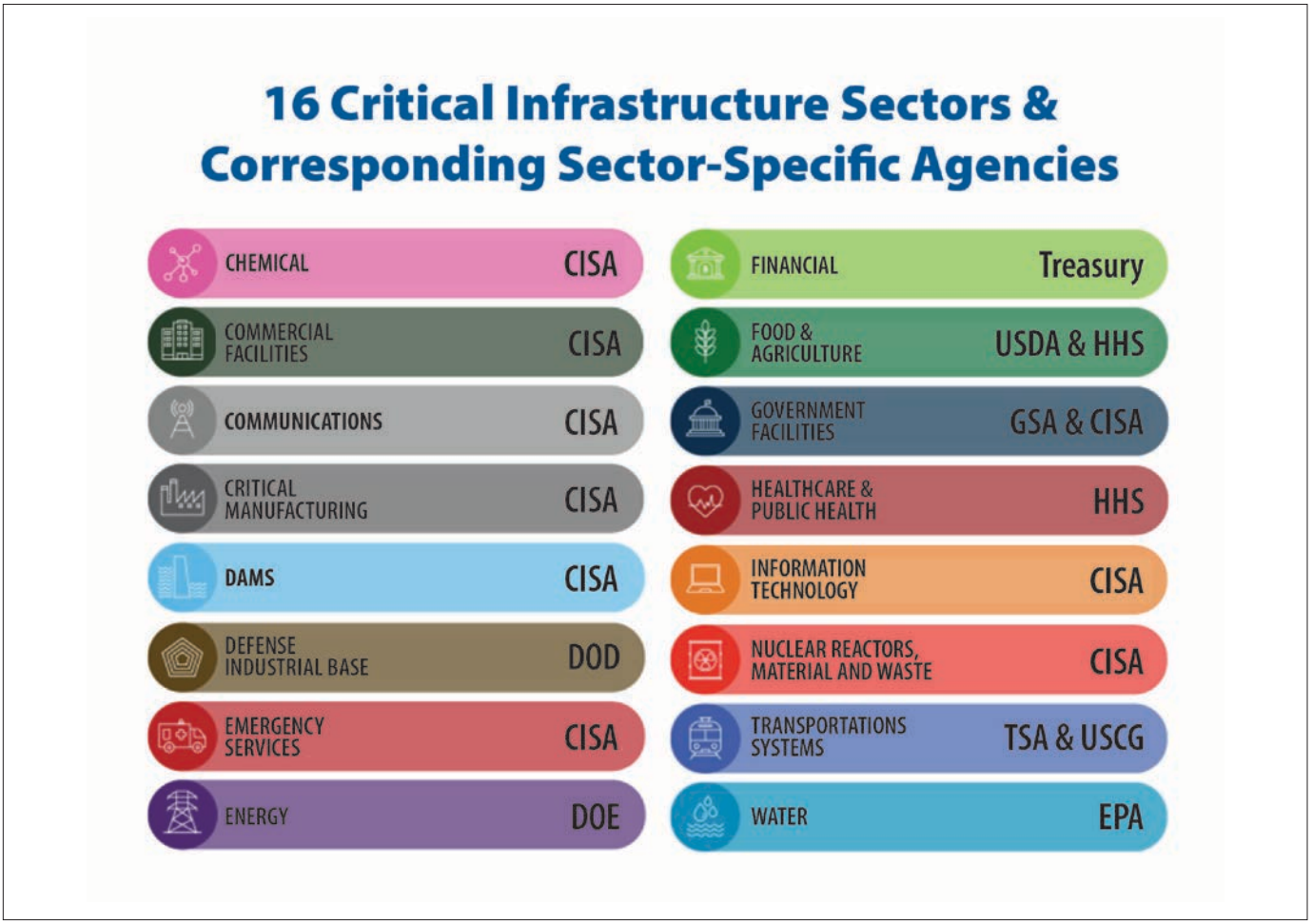
Operating in Alaska presents unique challenges. As the largest state in the United States, Alaska boasts more than 33,000 miles of coastline—more than the entire continental United States' coastline combined. Despite this vast expanse, Alaska has the third lowest population of any state, with roughly 740,000 residents. An estimated 90% of consumer and industrial goods arrive in Alaska by ship, making maritime logistics a linchpin for sustaining its communities. The reliability of this supply chain hinges on robust critical infrastructure that supports transportation, communications, and commerce.

While maritime logistics has always been pivotal in Alaska's development, recent shifts in technology and economic partnerships have further underscored the region's strategic importance. Growing interagency collaboration, particularly between federal, state, and tribal entities, aims to balance economic investments with infrastructure resilience. In this environment, the Coast Guard's role in maintaining safety and overseeing



Cybersecurity & Infrastructure Security Agency illustration

critical port operations remains front and center.

The U.S. government categorizes critical infrastructure (CI) into 16 sectors as outlined in the 2013 National Infrastructure Protection Plan (NIPP).[1] The Department of Homeland Security designates sector-specific agencies to oversee 10 of these sectors, with the Coast Guard and the Transportation Security Administration responsible for the transportation systems sector. Given its vital role, the Coast Guard must ensure that ports remain functional, facilitating the shipment of goods essential to both Alaska and the broader national economy.

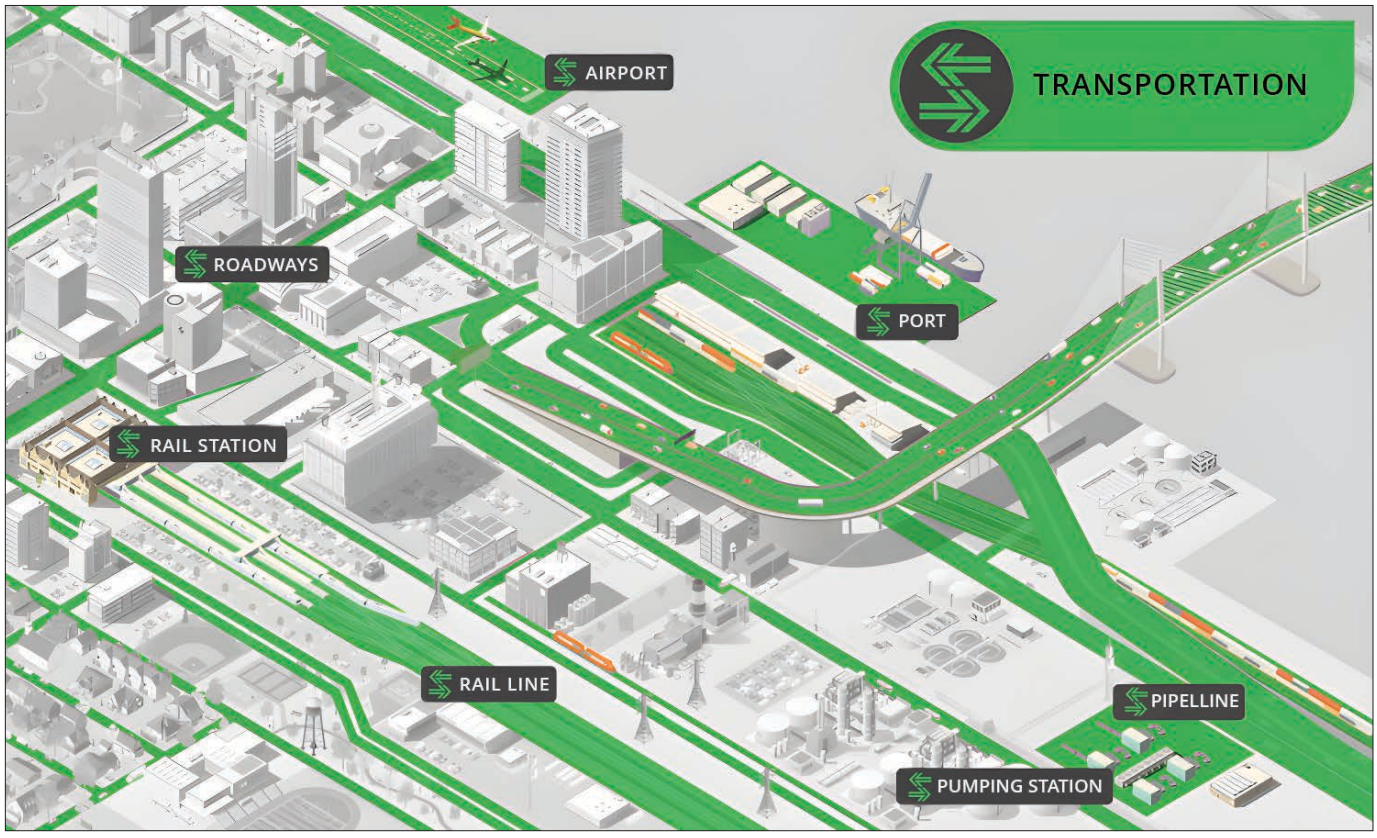
Within the 16 CI sectors, four have been identified as lifeline sectors by the Cybersecurity and Infrastructure Security Agency (CISA) due to their critical interdependencies. CISA states that they are "critical to the operations of almost all other sectors, as well as each other, and are fundamental to the delivery of the basic societal functions communities seek to provide."[2] These sectors—communications, water, energy, and transportation systems—are fundamental to maintaining societal functions. Transportation in particular serves as the backbone that connects these lifelines, underscoring its significance in ensuring national security and economic stability.

Beyond their official designations, these four lifeline sectors are especially pronounced in Alaska due to the state's isolation. Communications towers must withstand extreme temperatures and wind speeds. Water treatment facilities often rely on specialized supply chains for chemicals and parts. Energy infrastructure, from electricity generation to fuel transport, can be disrupted by harsh weather and seasonal conditions. Perhaps most importantly, transportation systems in Alaska frequently intersect with energy routes—fuel barges need secure ports, trucks need well-maintained roads, and ferries require reliable dock facilities. When one lifeline stumbles, the effect is felt across the others, intensifying the need for holistic infrastructure planning and investment.

The Alaska Factor

Alaska's distribution system is best described as a network of single transit routes extending longitudinally throughout the state, with minimal cross-connectivity. The state's reliance on maritime transport, including cargo ships, barges, and ferries, further compounds logistical challenges, making supply chain disruptions a looming risk. Additionally, many inland communities depend on barge traffic to receive essential goods, making real-time supply chain management an indispensable tool.

Alaska's remote environment necessitates a heavy



Transportation is one of four infrastructure sectors critical to the operations of almost all other sectors, as well as each other. The other three are energy, communications, and water. Together, they are fundamental to the delivery of the basic societal functions communities seek to provide. Cybersecurity & Infrastructure Security Agency illustration

reliance on technology for supply chain visibility and management. In remote regions, a single road closure or waterway blockage can isolate entire communities for days or even weeks. To mitigate these risks, local governments and federal partners have ramped up the deployment of advanced tracking systems and satellite communications to monitor maritime traffic and rapidly identify bottlenecks. At the same time, private operators ranging from fisheries to tourism outfits have begun integrating sensor technology to better coordinate vessel arrivals and departures. As these digital platforms expand, so does the exposure to cyberthreats, reinforcing the need for robust cybersecurity protocols at every node of the supply chain. The increasing dependence on digital infrastructure has further elevated the importance of secure and resilient communication networks to maintain operational continuity.

Strengthening Communications with NOAA's N-Wave

The National Oceanic and Atmospheric Administration's (NOAA) N-Wave initiative provides a case study in communication resilience. N-Wave is poised to be a cornerstone of future network infrastructure by integrating cutting-edge technologies that address the evolving demands of data-intensive applications and secure communications. Its commitment to high-performance, scalable, and cyber-resilient network services aligns with emerging trends in the networking landscape. It provides high-performance, cyber-resilient, and scalable network infrastructure crucial for scientific research, environmental monitoring, and secure data exchange. It supports federal agencies, research institutions, and state governments by offering advanced network security, cloud integration, and compliance with federal cybersecurity mandates. Its Trusted Internet Connection (TIC) and TIC Access Provider (TICAP) services ensure secure, efficient, and reliable data transmission, making it essential technology in an era where data security and real-time information sharing are critical.

In an era where Alaska's connectivity relies heavily on data routed through Seattle peering points, NOAA's N-Wave project has introduced a transformative approach by establishing the Alaska Peering Exchange (AlaskaIX)—a carrier-neutral exchange designed to enhance network resilience.

By reducing the dependency on out-of-state nodes, N-Wave minimizes the potential for widespread disruptions that can stem from network outages or congested transfer points in the continental United States. Keeping data flows primarily within Alaska also means lower latency for critical operations such as vessel tracking, weather monitoring, and real-time port status updates. This advantage extends to a variety of federal and local agencies, including emergency management teams, making them less reliant on a single "choke point" for communications.

- **Reducing dependency on external infrastructure** is one of AlaskaIX's several key objectives. By keeping data exchanges within Alaska, the initiative minimizes reliance on out-of-state nodes, lowering latency and improving network performance.
- **Enhancing cybersecurity**. Direct, in-state data exchanges mitigate exposure to external threats while ensuring compliance with federal cybersecurity directives such as National Institute of Standards and Technology (NIST), Federal Information Security Modernization Act, and CISA guidelines.
- **Improving operational continuity**. By eliminating the vulnerabilities associated with routing data through Seattle, N-Wave prevents external network failures from disrupting Alaska's critical infrastructure.
- **Supporting federal, state, tribal, and private-sector partners**. Secure access to NOAA datasets, weather models, and scientific research ensures informed decision-making in sectors ranging from emergency management to commercial logistics.

What is NOAA's N-Wave?

N-Wave, the National Oceanic and Atmospheric Administration's network service provider, plays a critical role in supporting the agency's mission while providing a secure, high-performance network infrastructure to federal agencies responsible for national security, military operations, and public safety.

By ensuring mission continuity, operational resilience, and real-time access to vital environmental and weather intelligence, N-Wave strengthens the 16 critical infrastructure sectors designated by the Department of Homeland Security and the Cybersecurity and Infrastructure Security Agency.

Operational since 2009, N-Wave's national network infrastructure extends across the contiguous United States, including Alaska and Hawaii, reaching remote field sites, major campuses, data centers and supercomputing facilities.

This carrier-neutral model also opens new opportunities for competition and innovation. Smaller telecommunication providers can plug into the exchange without incurring the massive costs of establishing an independent, long-distance network. Tribal communities, often overlooked in large-scale infrastructure plans, gain more direct avenues for broadband connectivity. The result is not only a more resilient network but also the prospect of economic growth tied to improved digital access across Alaska.

N-Wave's core infrastructure is primarily for NOAA and other federal and Department of Defense (DoD) partners. NOAA is a data producer and the primary consumers in Alaska are state, local, tribal and territorial (SLTT) stakeholders, education and research, along with our partners. The implementation and operation of AlaskaIX and the federal TIC within Alaska is designed to provide SLTT, educational, and research organizations faster and more efficient access to NOAA data products.

Satellites complement N-Wave's network by providing connectivity to remote areas and ensuring that data can be transmitted globally. An increase in the number of satellites would likely:

- Improve coverage and reliability, particularly for remote field sites that N-Wave supports.
- Reduce latency by enabling more direct and diverse data routing options.
- Enhance environmental and climate research by enabling the real-time transmission of satellite data to NOAA and other agencies.
- Increase cybersecurity challenges, as more satellites mean more data points that need secure transmission and protection against cyberthreats.

The interplay of satellite communications with terrestrial networks like N-Wave offers a layered approach to connectivity. In situations where local terrestrial links suffer outages—whether from severe storms, geological events, or equipment failure—satellite channels can keep data flowing. This redundancy proves especially vital for first responders and remote research stations that rely on continuous data streams for weather forecasting or environmental monitoring. However, each additional node in a network also presents new potential vulnerabilities, underlining the importance of comprehensive cybersecurity strategies that evolve alongside technological expansion.

Expansion of this technology in Alaska would likely involve scaling up AlaskaIX to additional locations beyond Anchorage, such as Fairbanks and other rural areas. Integration of all federal and DoD partners, in conjunction with statewide participation in the Exchange would:

- Enhance local data sovereignty, reducing reliance on infrastructure outside of Alaska.
- Improve broadband connectivity, particularly for tribal nations, research institutions, and state agencies.
- Increase network security and resilience, ensuring that NOAA datasets and other critical data remain secure within the state.
- Enable better access to weather models and scientific research, supporting industries like fisheries, environmental monitoring, and emergency response.

Targeted expansions toward regions like the North Slope or Southeast Alaska could significantly bolster local industries. For example, the fishing communities of Southeast Alaska rely heavily on accurate, up-to-the-minute weather reports. A more robust peering network could allow them to access NOAA's datasets in near-real-time, reducing the risk of accidents at sea. Similarly, collaboration with University of Alaska research sites would foster advanced environmental studies, bridging academic research with real-world applications in wildlife conservation, adaptation to extreme weather, and sustainable energy development.

Redundancy, the inclusion of additional components not strictly necessary to function in case other components fail, is a key resiliency principle. Achieving true redundancy is a costly endeavor if approached in isolation. However, expanding N-Wave's Alaskan infrastructure by partnering with the federal agencies across the state and using AlaskaXI statewide, redundancy can be achieved in a cost-effective and efficient manner. By implementing multipath routing, localized data exchanges, advanced cybersecurity, and a distributed infrastructure, N-Wave achieves a high level of resilience and redundancy. This ensures that mission-critical operations, such as environmental monitoring and emergency response, remain operational even in the face of failures, cyberthreats, or infrastructure disruptions.

This push toward collaborative infrastructure is more than just a technical upgrade. It's a strategic decision that strengthens the state's overall readiness. By pooling resources, various stakeholders are relieved of shouldering the entire financial burden for robust network routes. That cost-effectiveness drives further innovation, allowing more frequent updates to hardware and software. Meanwhile, localized exchanges create a buffer against network congestion. Even if a major population center faces outages or security incidents, smaller nodes elsewhere in the state can maintain critical data flows.

By integrating TICAP-compliant security measures with localized peering infrastructure, N-Wave offers a resilient and cybersecure communications blueprint for Alaska's critical infrastructure stakeholders. The

Remote Alaskan towns, like Noorvik near the Kobuk River, rely on the Marine Transportation System for necessities like food, fuel, and industrial goods. Photo by Gemma Winston | iStock/Getty Images

ability to retain and manage data within the state not only fortifies national security but also ensures that key industries, including the Marine Transportation System, remain operational under adverse conditions.

Consider the potential ripple effects for maritime commerce if ports and operators can trust in a stable, high-bandwidth network that's intrinsically designed with security in mind. It becomes easier to coordinate vessel traffic, share cargo manifests securely, and respond to natural disasters or supply chain disruptions. This blueprint then becomes a model for other remote regions—both within the United States and in similarly challenging environments worldwide—seeking to balance modern technological demands with geographical isolation.

Conclusion

Alaska's remoteness, while a logistical challenge, also presents opportunities for innovation in infrastructure resilience. The NOAA N-Wave initiative exemplifies how strategic investments in communication networks can safeguard critical operations and ensure interoperability across vital sectors. As technology continues to evolve, embracing secure, resilient communication models will be pivotal in maintaining Alaska's role as a key maritime gateway, reinforcing the nation's economic and security imperatives.

Looking ahead, the continued rollout of next-generation technologies—from more advanced satellite constellations to distributed edge computing—will likely hinge on a unified approach to resilience. Coordination among state agencies, tribal governments, the Coast Guard, NOAA, and private-sector players ensures that Alaska's maritime infrastructure remains at the forefront of innovation. This collaborative roadmap not only keeps Alaskan communities connected and thriving but also delivers a strong return on investment in the form of streamlined commerce, safer ports, and greater strategic influence in America's most remote frontiers.

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Captain Joseph Baczkowski is a U.S. Public Health Service Commissioned Officer detailed to the National Oceanic and Atmospheric Administration (NOAA) since 2009. His assignments include chief information officer of NOAA's Office of Marine and Aviation Operations, director of NOAA's Cloud Program Office, and director of NOAA N-Wave. He also served eight years in the Army as an infantryman and signal specialist and three years in the Air Force as a cyber and satellite operator.

Endnotes:

1. NIPP 2013: Partnering for Critical Infrastructure Security and Resilience (2013). In NIPP 2013: Partnering for Critical Infrastructure Security and Resilience [Report]. https://www.cisa.gov/sites/default/files/2022-11/national-infrastructure-protection-plan-2013-508.pdf
2. CISA. (n.d.). Cybersecurity and Infrastructure Security Agency CISA. Retrieved from https://www.cisa.gov/topics/critical-infrastructure-security-and-resilience/resilience-services/infrastructure-dependency-primer/learn/critical-infrastructure-systems#:~:text=These%20four%20infrastructure%20sectors%E2%80%94Energy,functions%20communities%20seek%20to%20provide.

Quintessential Kodiak

A complex, long-distance Arctic rescue

by LCDR Caitlyn Gever
MH-60T Instructor Pilot
Air Station Kodiak
U.S. Coast Guard

At 2 a.m. on August 26, 2023, Coast Guard LT Justin Baker completed what he described as "the toughest approach in the worst conditions" of his career as an MH-60T pilot. He and LT Bobby McConnel had just landed in Cold Bay after executing a mission that began 18 hours earlier.

The previous morning, in the overnight duty crew housing, I was getting ready for the day as the Air Station Kodiak operations duty officer (ODO) when the phone rang. The Arctic District watch officer was requesting an MH-60T to medevac a 26-year-old man from a fishing vessel in the Bering Sea more than 200 nautical miles northwest of St. Paul Island, Alaska.

Balking at the daunting distance, I began the ODO's response process. As the operations officer's (OPS) representative, the ODO is charged with coordinating the launch and recovery of all aviation assets at Air Station Kodiak, as well as orchestrating and monitoring ongoing response efforts of search and rescue (SAR) cases and medical evacuations.

Normal procedure dictates that the ODO discuss the details of a request to use an asset with OPS before the aircraft's launch. This response effort required extensive planning due to the massive distance between the air station and the vessel with the ailing patient. For perspective, the initial position of the vessel was over 700 miles from Air Station Kodiak. That's like getting a call in Washington, D.C., to respond to a vessel in Miami.

The medevac discussion covered key details of the request, including the patient's medical condition, the flight surgeon's recommended timeframe for transporting the patient to advanced medical care, and any altitude or flight restrictions. Additionally, OPS can weigh in on recommendations for additional personnel such as health care professionals, if available, and risks to Coast Guard personnel and/or to the patient in a Coast Guard aircraft. They may also suggest other options that could be used instead of a helicopter—cutters, small boats, or civilian-operated commercial medevac services.

The C-130 crew receives a mission brief aboard the aircraft before departing Kodiak, Alaska. Photo courtesy of Deon Mitton

Air Station Kodiak maintains H-60 and C-130 crews in a Bravo-Zero (B-0), status, meaning that either crew will be airborne within 30 minutes of launch notification. The H-60 crew launched from Air Station Kodiak with the primary responsibility of ferrying the aircraft from Kodiak to St. Paul. By the time they reached St. Paul more than six hours later, the B-0 H-60 crewmembers were at their flight time limitations. They met the B-0 C-130 crew that was waiting with a fresh H-60 crew who would perform the hoist of the patient and return to St. Paul Island. There, a civilian medevac airplane would meet them to transfer the patient and transport him to Anchorage for further medical care.

The MH-60T has a maximum gross weight limit of 21,884 pounds including fuel, equipment, and crew/patients.

Planning a Long-Distance, Cold-Weather Rescue

When equipped with a full fuel load, the MH-60T's range is about 200 nautical miles (nm) offshore, depending on wind and other weather conditions. Since the aircraft couldn't make a nonstop journey to St. Paul on a single fuel load, the crew arranged for a refueling stop in Cold Bay, Alaska, where the Coast Guard maintains a seasonal station.

However, they had other considerations as cold-weather flying, though not unique to Alaska, presents its own challenges. To prevent fuel from freezing in cold temperatures and at altitude, fuel additives must be combined with aviation fuel. Often, aircrews must pack these additives themselves and add them manually when they are away from their home stations. Additionally, when there is no hangar available for the H-60, the aircraft requires special cold-weather plugs, covers, and tie downs to be stored safely. This prevents ice buildup in engine intakes and on flight control surfaces and prevents the rotor blades from being damaged by high winds, all of which are year-round hazards in Alaska.

While the H-60 is fully outfitted with a standard search and rescue configuration, many of these additional items are not part of the standard outfit. The kit of plugs and tie downs takes up space in the helicopter's cabin and adds extra weight, reducing the amount of fuel that can be taken. These considerations don't necessarily apply to other Coast Guard units operating within the contiguous United States where fuel and aircraft storage options are abundant.

While the B-0 H-60 crew was developing its plan, the rest of the SAR coordination effort was underway. As the ODO, I had to identify a second H-60 crew—referred to as the backup H-60 crew—available to complete the hoist. This crew would travel from Kodiak to St. Paul aboard a C-130, where they would take over piloting the helicopter that had been transported from Kodiak by the B-0 crew.

Part of the backup crew, LT Justin Baker, an H-60 aircraft commander who had checked into the unit two weeks prior and completed a single warmup flight, showed up to work was told, "Go pack your bags! You're headed downrange." An hour after discovering he would be part of the team completing the hoist, he met his crew, loaded his gear on the waiting C-130, and learned that St. Paul was in the middle of the Bering Sea.

Since a thorough response always includes multiple contingencies and backup plans, the C-130 crewmembers were notified they were being launched to support the mission, provide crew transport, and maintain cover for the H-60 completing the hoist. It was too early to know if civilian medical evacuation services could be deployed to St. Paul to pick up the patient after the hoist at the initial notification. If it wasn't an option, the C-130 was the backup to transport the patient to Anchorage.

In addition to the backup H-60 crew and the C-130 duty crews, I also had to identify a self-rescue H-60 crew. It's Coast Guard policy to maintain a self-rescue capability, meaning that in the event an aircrew crashes or is forced to ditch the aircraft into the water, the only viable option for recovery is another Coast Guard helicopter. Even though H-60 aircrew members fly in dry suits and thermal layers, it is expected that the time of likely consciousness is only three to four hours, given the temperatures in Alaska. Therefore, operational decision-makers attempt to keep the self-rescue asset within an approximate radius of response time where the maximum recovery time should not exceed the estimated time to loss of useful consciousness. In this case, the self-rescue crew would be positioned in either Cold Bay or Dutch Harbor, Alaska.

As the plan developed, the self-rescue crew was planning to go to Coast Guard facilities in Cold Bay but learned midflight that Mount Shishaldin was erupting. Situated just 50 nm from Cold Bay, it spread a cloud of volcanic ash over the airport, creating a major hazard to aircraft and restricting flights in or out of the area.

A significant meteorological information (SIGMET) advisory was issued to alert pilots to avoid the area over

Cold Bay and between the Alaska Peninsula and Bristol Bay. This hazard not only restricted the B-0 H-60 crew that stopped in Cold Bay to refuel but was also directly in the path of the C-130 transiting to St. Paul, as well as the inbound self-rescue crew, posing an imminent threat.

When the SIGMET was issued, the ash encompassed all but a portion of one runway in Cold Bay. Ultimately, the B-0 H-60 crewmembers determined they could safely depart Cold Bay to the south and find a clear route by circumnavigating the island that Cold Bay borders, adding significant time to the transit to St. Paul.

Meanwhile, the self-rescue crewmembers were modifying their plan in flight. They believed they had to make it to Dutch Harbor to avoid the SIGMET event and retain their readiness capability. Since Dutch Harbor sits another 150 nm down the Aleutian chain from Cold Bay, they too, had to stop for fuel, and there is effectively only one place to refuel between Kodiak and Cold Bay—Sand Point. While the automated weather was reporting marginal visibility, the self-rescue crew later said visibility was significantly worse, but they safely land in Sand Point to refuel. While on deck, the SIGMET was updated allowing them to avoid the ash and proceed to Cold Bay.

Providing Cover

When an H-60 responds to a location where there's no radio reception or assistance is potentially hundreds of miles away, a C-130 provides "cover," providing a communications platform and serving as a resource if assistance is needed.

The Bravo-Zero C-130 crewmembers gather in front of the C-130 on St. Paul Island, Alaska, while waiting for the Bravo-Zero H-60 crew to arrive from Kodiak. The crews, including a backup H-60 crew were involved in a search and rescue mission near St. Paul Island—northwest of the Aleutian Islands in the Bering Sea. Photo courtesy of Deon Mitton

LCDR Derek Kelley, left, and CDR Michael Faulkner pilot the Coast Guard C-130 during the rescue of a 26-year-old patient from a fishing vessel in the Bering Sea, northwest of Alaska's Aleutian Islands. Photo courtesy of Deon Mitton

The B-0 H-60 and C-130 both landed safely in St. Paul.

At long last, the backup H-60 crew was ready to complete the hoist of the patient. However, the No. 2 engine failed to start. Fortunately, the replacement parts necessary to make the repair were on hand, and the mission continued with the C-130 providing cover during the hoisting.

With the hoist complete and the B-0 H-60 crew on board, the C-130 returned to Kodiak, while the backup H-60 crew flew the patient to St. Paul where he was transferred to commercial medevac services. After the patient transfer, the backup H-60 crew faced another tough call—stay in St. Paul with its minimal lodging and no hangar space or fly back to Cold Bay. The deteriorating weather forecast made them hesitant about leaving the aircraft outside, so they elected to return to Cold Bay. The weather was determined to cause problems regardless of whether the crew was on the ground or in the air and, at nearly 2 a.m., had worsened significantly en route. Encountering increasingly heavy fog, they closely followed the low visibility route until they could make out the runway lights and land safely.

While the self-rescue crew and aircraft would return to Kodiak the following morning, the backup H-60 crew would stay an additional day and complete another SAR mission and hoist of a 41-year-old male suffering heart attack symptoms off Cold Bay before returning. When all assets finally returned home, the air station crews had accumulated 29.4 flight hours, covering more than 1,400 nautical miles across four locations in just three days.

All told, the hoist itself was the most routine element. This effort, requiring every skillset taught and emphasized in the Alaska qualification syllabus, could be considered a quintessential Kodiak response that spans great distances and involves multiple aircraft, with crews flying long hours over multiple days to save lives. This one had it all.

About the author:

LCDR Caitlyn Gever is an MH-60T flight examiner, instructor pilot, and flight safety officer at Air Station Kodiak, Alaska. Originally from Rhode Island, she's been stationed in Kodiak for nearly two years after spending eight years in Florida. She has more than 1,500 hours of military flight time, and enjoys masters swimming, hiking, and traveling in her spare time.

Challenges

Search and Rescue Training in Southeast Alaska

The benefits of partnering in training

by LCDR Jared Carbajal
MH-60 pilot
Air Station Sitka
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There are still three people missing as two Coast Guard rescue swimmers, two Air Force pararescuemen, and four civilian search and rescue personnel plunge into the forests of Alaska. Thirty-seven people have already been accounted for, triaged, and myriad medical conditions are being assessed and treated by medical personnel. Evacuations are underway with the two Coast Guard MH-60T Jayhawk helicopters, an Air Force HH-60 Pave Hawk, and a boat from a Coast Guard fast response cutter holding offshore. The Pave Hawk has been tasked with flying the network of logging roads looking for survivors.

Fortunately, the three missing people are role players in the large-scale search and rescue exercise (SAREX) that Coast Guard Air Station Sitka holds annually.

Every spring, search and rescue (SAR) crews from the Pacific Northwest and Alaska travel to Air Station Sitka in Southeast Alaska. The annual event brings together SAR partners from the Canadian Air Force, the U.S. Air Force, aircraft from other Coast Guard air stations, as well as numerous Coast Guard cutters, boat operators, and local volunteer SAR teams. SAREX has ebbed and flowed in size and participation but has been gaining momentum over the past few years. Hosting SAREX has proven to be a rewarding experience for the unit, has strengthened partnerships, and improved interoperability with SAR partners throughout Alaska and the Pacific Northwest.

Tactics, Techniques, and Opportunities

As with any joint training exercise, bringing together multiple entities and individuals with similar mission statements and similar goals can greatly increase collaboration, information sharing, and ingenuity. "Why do they do it that way?" or "Could that work for us?" are questions often asked by professionals pursuing perfection. Conversely, watching another organization struggle through a scenario can improve confidence in your own training, techniques, and operating procedures.

A truly standardized operating procedure, equipment list, and doctrine are hallmarks of a professional SAR service and one that the Coast Guard prides itself on. Every crew position on a Coast Guard aircraft has an annual standardization pass/fail check, every air station has an annual standardization visit, and every pilot travels to an annual proficiency course conducted in a multimillion-dollar simulator. With this level of standardization, it could be easy for an organization to become set in its ways and stagnate in its techniques. However, not all situations can be covered by policy and procedures.

Experience is one of the most valuable assets a SAR crew can have on its side during a mission and can vary greatly based on prior assignments, geography, time in service, and sometimes just plain luck. A joint training exercise is a phenomenal venue for sharing experiences.

Though a Coast Guard crew has a standardized checklist and procedure for offsite landings, watching an Air Force Pave Hawk crew chief throw pine branches onto a glacier before landing demonstrated an easy, effective method to overcome the challenging lack of depth perception needed to safely conduct a glacier or snowfield landing. Having a boat available to hoist with and a Coast Guard instructor pilot led to an Air Force Combat Search and Rescue crew learning valuable techniques for hoisting to a boat that was dead in the water. This scenario is particularly challenging due to the helicopter's downwash causing the vessel to shift.

In another scenario, the local municipal volunteer SAR team was flown to an alpine zone and deployed to find a buried avalanche beacon. Crews learned the importance of snow stability and safe responder deployment areas. Of course, the gear cannot be forgotten. While the pilots compared aircraft performance and capabilities, the ground crews assessed everything from carabiners to jackets and snowshoes. During the exchange lessons

learned, they shared insights on failed gear and weighed the pros and cons of their current equipment.

Hosting a SAREX provides training opportunities that aren't normally available to a small, three-helicopter unit like Air Station Sitka. Throughout the week, there were multiple standalone scenarios that participating crews responded to individually. Some required teams to ride along or involved a surface asset, but they were relatively small single-aircraft scenarios.

The past three SAREXs have culminated with a simulated mass casualty exercise including all participants simultaneously. One of these exercises was a grounding and sinking of an adventure cruise ship with 40 people on board. Weather restrictions resulted in ground units being flown to a position short of the incident requiring the unit members to move themselves and their gear to the objective without air support. The following hours were spent locating, triaging, and consolidating survivors.

Latitudes and longitudes from simulated cellphone triangulation were given as clues and responders had to use land navigation skills to find the remaining survivors in the forest. Aircrews waiting for the weather to clear developed aircraft deconfliction strategies and established communication plans before being released back to the incident. With the growing number of people visiting, recreating, and working in remote Alaska, the lessons learned from this unique scenario are invaluable.

Partnerships

Search and rescue is about saving lives. The human connection among responders is a force multiplier not to be underestimated. Giving a SAR crew a challenging,

An Alaska Air National Guard HH-60 Pave Hawk prepares to hoist from CGC *Bailey Barco*, a Coast Guard fast response cutter. Photo courtesy of Dan Adams/Aviation Photojournal

A victim of an avalanche burial is hoisted during an avalanche search and rescue exercise. Coast Guard photo by Petty Officer 2nd Class Ian Gray

well-prepared, attainable scenario can foster teamwork, push crew resource management beyond normal training ruts, and strengthen camaraderie. That same scenario can be expanded to involve a local civilian SAR team or perhaps a visiting Coast Guard cutter. Additionally, matching faces with the names of members from partner organizations can enhance communication and forge stronger relationships, leading to more efficient coordination during real-world, multiagency operations.

A SAR crew should be confident in its equipment, training and ability, but it is equally important to know its limitations. There is a time for a maximum effort and an acceptance of high risk to save lives, but there is also a time to accept that you may not be the best asset for the mission. Working alongside other SAR organizations has the added benefit of showcasing strengths and expertise. For example, while the Coast Guard aircrews excelled with hoisting to a wide variety of vessels and precise recoveries of survivors from the water, other attendees brought rope expertise as well as mass casualty command and control capabilities. Coast Guard cutters proved to be excellent communication relays and civilian SAR teams brought local area knowledge.

Though the nearest rescue coordination center has a grasp of capabilities and limitations, these events provide valuable opportunities for crews placed in on-scene command roles to optimize the use of all responders. This enhances overall effectiveness while reducing risk.

Besides the partnerships with fellow SAR response units, SAREX has also strengthened internal and local relationships. Within the unit hosting the exercise, multiple departments and personnel work together to accomplish the event, using support personnel as simulated survivors to get "rescued" throughout the week added a level of realism while improving teamwork and mission buy-in. Though Southeast Alaska's geography and remoteness provides an ideal environment for training, complicated layers of land ownership, wildlife protection, and resource management sometimes require special use permits or prior permission from other government agencies. Again, this bolsters relationships with numerous agencies and individuals in a remote, sometimes resource-starved area.

Hosting a SAREX

For those interested in hosting and coordinating a joint SAR exercise, a few valuable lessons have been learned and techniques honed. First, include all invited participants in selecting a date. Personnel transfer seasons, weather, scheduled maintenance, temporary duty, standardization or certification visits, and budgeting, among other things, can all affect participation. Get the red tape done early, too. Foreign visitor authorization, visitor passes, approval to transport civilian SAR crews, special land-use permits, and fuel availability are examples of tasks that may take some time to get approved. Assign sponsors to each participating crew or team to assist with logistics, coordinate arrival times, staging areas, and more.

Scenarios are what can really make or break a SAREX. A good scenario can push skill development, find a weakness, or hone a skill. When creating scenarios, keep in mind who will be responding and what some of their basic capabilities and limitations are. Does their aircraft have a hoist? Can they use direction-finding equipment to locate a personal locator beacon? Are they EMTs or paramedics? Is the boat crew able to work with the SAR crew to perform helicopter operations? It may be necessary to develop different tiers of scenarios based on participants' capabilities or training restrictions.

There can be a strong desire to create a complex, multifaceted scenario with lots of moving parts and decision opportunities. The result often seems obvious to the scenario's creator, but more often than not, different backgrounds or experience will result in a crew tackling the scenario much differently than the designer intended. Make sure the information provided to the crew is sufficient and be ready to provide additional information if you see a crew misunderstanding the scenario. It's better to clarify a detail than to let a crew go hours in the wrong direction and return frustrated. As the host unit, try to keep the details of the scenarios hidden from your crews to maximize the benefits for your unit personnel.

Conclusion

There are many competing demands on agencies and organizations. Areas of operations are large, resources are scarce, and experience levels ebb and flow. More so then ever, unique events generated at the unit level, such as SAREX Sitka, should be used to keep crews sharp and interoperable.

In October 1980, the Dutch luxury cruise ship *Prinsendam* caught fire and eventually sank 130 miles offshore in the Gulf of Alaska. In the miracle that followed, 520 people were rescued from lifeboats by rescuers from the same units and organizations that converge on Sitka every year. Coast Guard Air Station Sitka is proud to continue and promote the long tradition of joint search and rescue operations in Southeast Alaska and the Coast Guard's Arctic District.

About the author:

LCDR Jared Carbajal is an MH-60 pilot stationed at Coast Guard Air Station Sitka, Alaska, and has been the lead planner for the past three SAREXs. Prior to Air Station Sitka, he was assigned to Air Station Kodiak, giving him a combined nine consecutive years flying as a search and rescue pilot in Alaska.

Alaska's Frozen Front Line

Mastering search and rescue in the Last Frontier

by LT Kyle Jackson
MH-60T Pilot
Air Station Kodiak
U.S. Coast Guard

Cold Bay, Alaska, stands at the Western edge of the Alaskan Peninsula with a permanent population of roughly 140 people. Isolated yet breathtaking, the town is surrounded by jagged mountains, frigid waters, and unpredictable weather. The harsh winds carry the sharp bite of the Arctic, and the landscape is a blend of rugged coastline and snow-covered tundra.

Cold Bay is a paradoxical place, simultaneously serene and formidable, a reminder of humanity's smallness in the face of nature. To a Coast Guard pilot, the isolation and stark beauty of Cold Bay make it both humbling and invitingly challenging.

Shishaldin Volcano, 50 nautical miles west of Cold Bay, Alaska, routinely shows signs of volcanic activity and can be seen from Cold Bay on a clear day. Coast Guard photo by LT Kyle Jackson

My first MH-60 helicopter deployment in Alaska was to Cold Bay. Being my first year in Alaska, the deployment was filled with anticipation and a healthy dose of trepidation. I remember my first step off the HC-130J Super Hercules that transported my crew from Air Station Kodiak to this remote forward operating location. There, I will never forget my initial look around. The first thing I felt was the cold slap of the wind; it seemed to cut through every layer of clothing and pierce straight to my core. It certainly felt like an Alaskan greeting.

Within moments, I was struck by how isolating the place felt. I looked across the airfield to the rolling tundra that stretched for miles, slowly ascending to a peak I would soon come to know as Mount Baldy—a fitting name, as there were only a handful of shrubs speckled across it. There were no paved roads, no restaurants, and no box stores. All drinking water was sourced from jugs at a local depot that doubled as the town's elementary school. As someone who grew up in the suburbs of New England, this was an experience unlike any I had encountered before.

Our mission was to serve as a deployed helicopter crew responsible for search and rescue (SAR) operations along the 900 nautical miles of the Aleutian Islands and north into the notoriously unforgiving Bering Sea. We were deployed with one Coast Guard MH-60T Jayhawk helicopter, "Big Iron" as they're known in the fleet. With a range of 600 nautical miles, onboard GPS navigation, radar, anti-ice and deicing equipment, the aircraft is a pleasure to fly and crucial for conducting SAR missions throughout Alaska.

We just settled into our new home for the next two weeks when the call came in around 11 p.m. It was a medical emergency in the small fishing community of King Cove. The report indicated a 50-year-old man was experiencing chest pains and showing early signs of a heart attack. Given the limited medical facilities in King Cove, our mission was straightforward. Fly to King Cove, pick him up, and transport him to Cold Bay, where commercial medical transport would take him to Anchorage. King Cove is located about 17 nautical miles from Cold Bay, a stone's throw in helicopter terms, yet the terrain prevented any form of transportation other than air.

Our crew gathered to discuss the mission. There were no immediate concerns. We checked current and forecasted weather—clear skies, light winds from the north, and a near-full moon. All conditions appeared favorable for a nighttime medical evacuation, or medevac. We estimated the entire operation would take approximately an hour from takeoff to shut down upon our return to Cold Bay. Short, routine cases like these are what we typically refer to as "Gentleman's SAR." However, in Alaska, I would soon learn that even the simplest missions can become anything but routine.

As we departed Cold Bay, we plotted a flight path through Lenard Harbor, a narrow bay leading directly to King Cove's Runway 8. This harbor snakes through rugged terrain, with sharp cliffs and dense snowdrifts lining its edges. It was the most direct route to King Cove. Additionally, we devised an alternate route around Deer Island and into Belkofski Bay, ensuring a low-altitude option over water to mitigate terrain hazards. At the mouth of Lenard Harbor, we established a decision point: If visibility extended to the back of the bay, we would proceed. Otherwise, we would follow the alternate route. Conditions appeared favorable, and we confidently followed our flight plan toward King Cove airport.

As we crossed a ridgeline at the back of Lenard Harbor, King Cove's airfield was in sight. It is a relatively small airfield, the runway approximately 3,500 feet long and unpaved, which is typical for Alaska. The field is nestled at the base of mountains rising to 5,000 feet to the north and 2,000 feet to the south. As we began our final approach to Runway 8, we noticed distinct white streaks passing across the windscreen from below our night vision goggles' field of view —resembling the streaking stars seen in "Star Wars" when the Millennium Falcon jumps to light speed. Snow began to fall—lightly at first, then with increasing intensity. To our left, abrupt mountains loomed like silent sentinels. Alaska's rugged peaks are notorious for generating their own weather systems, and we soon found ourselves on the leading edge of a fast-moving snow squall. This weather was not forecasted and in stark contrast to our expectations. Visibility diminished steadily, but with the runway in sight, we landed, retrieved the patient, and departed before conditions worsened. To minimize blowing snow and maintain visibility, we executed a no-hover landing. Once safely on the ground, we taxied off the runway to meet the ambulance.

Fortunately, our wait for the ambulance was brief. We dispatched our swimmer to coordinate with the EMTs and collect the patient—a tall, weathered man whose presence spoke volumes about the resilience required to live in such an unforgiving environment. With the patient safely aboard, our crew turned its attention to the challenge of determining the safest route back to Cold Bay.

Snowfall intensified, and visibility continued to deteriorate rapidly as we sat by the runway. We evaluated our options which included returning via Lenard Harbor, departing east via Belkofski Bay, or remaining on deck to wait out the storm.

Our first option, retracing our inbound route through Lenard Harbor, had its advantages. We were familiar with the terrain, it was the shortest route back to Cold Bay, and it allowed for an upwind takeoff. However, with the storm advancing from that direction and mountainous

terrain posing significant risks, this option was not ideal.

The second option, departing east to Belkofski Bay, appeared more favorable. The storm had not yet enveloped the departure end of Runway 8, and the faint outline of the coastline was still visible. The primary concerns with this route were the potential tailwind on takeoff and the longer transit around Deer Island. However, it offered a safer, terrain-free path.

The third option—remaining on deck—was the safest in terms of immediate risk. However, given the deteriorating conditions and the urgency of transporting our patient to higher care, waiting was not the preferred choice unless departure proved unfeasible.

After a thorough discussion, we opted for the second route via Belkofski Bay, keeping low over open water to avoid terrain hazards. Several factors required consideration before departure—the tailwind, diminishing visibility, potential loss of terrain reference, steep rising terrain to the north and south, and the risk of icing. We determined the tailwind was an acceptable risk, given our lighter aircraft weight and manageable power requirements. To minimize blowing snow and maintain visual references, we planned a no-hover takeoff with a steady climb away from the field. With cloud ceilings at approximately 600 feet, we aimed to fly at 300 feet to ensure terrain clearance while avoiding the clouds.

We also established contingencies. If we inadvertently entered a cloud at 300 feet and lost visibility, we would maintain heading and airspeed, committing to Belkofski Bay to break out over open water. Before departure, we verified that our blade deice and anti-ice systems were operational. With a clear plan in place, we lifted off, committed to the safest route home through the deteriorating Alaskan night.

Our decision proved sound. Maintaining visual contact with the ground and then water, we skirted the worst of the snow. South of Deer Island, we emerged into clearer conditions, providing an opportunity to plan our approach back to Cold Bay. Unfortunately, the airfield had deteriorated to instrument meteorological conditions. The combination of heavy snow and strong winds had reduced visibility to near zero, presenting us with a new challenge.

Given the worsening weather, climbing into icing conditions to execute an instrument approach was unappealing. Instead, we requested a Special Visual Flight Rules clearance to remain low over the water, visually navigating to Runway 26. Every system on the aircraft came into play—radar to identify terrain, forward-looking infrared (FLIR) to detect unseen obstacles, and deicing systems working overtime. The aircraft seemed to hum with purpose as we synchronized its advanced systems with our own meticulous coordination. Communication among the crew was paramount, ensuring readiness for any contingency.

As we followed our low-visibility route at 300 feet above the water, the visibility and ceilings steadily worsened, forcing us lower to maintain visual contact with the water. The aircraft was tossed violently due to the turbulent air coming from the mountains to the north. At 150 feet, we regained visibility with the water as we approached the turn to our final approach for Runway 26. Breaking out of the snow, we encountered a small pocket of improved visibility over the runway. The scene was surreal—a stark white expanse surrounded by swirling snow, framed by the ghostly outlines of the distant coastline. A no-hover landing was necessary due to snow covering the runway and the risk of dynamic rollover. The landing was purposefully firm but safe, and we slowly taxied the aircraft clear of the runway to our hangar. Though visibly shaken and airsick, our patient was promptly transferred to the waiting aircraft and flown to Anchorage for advanced care.

Cold Bay's remoteness constantly reminds you of its wild, feral nature. After completing the flight, I remember stepping out of the hangar and was greeted by a sobering sight—fresh bear tracks in the snow, just outside the door. Here, civilization feels like a fragile bubble suspended in an expansive and formidable wilderness. Each step outside is a reminder of the raw, untamed force of the Alaskan frontier.

This mission exemplified how quickly routine SAR operations can become complex in Alaska. Despite the short distance, the interplay of challenging terrain, rapidly changing weather, and intricate planning highlighted the necessity of adaptability. Alaska's remoteness and the scarcity of comprehensive weather reporting often require real-time adjustments. If you have only one plan, you've probably not given enough credit to the environment you are up against. It's imperative to rethink and develop alternatives.

Alaska's weather is notoriously volatile. Snow squalls, dense fog, and high winds are constants, often emerging without warning. Flexibility and decisiveness are crucial, as is leveraging every tool available. In this case, the MH-60 helicopter's extensive capabilities—radar, FLIR, deicing systems, and more—were indispensable to mission success. The aircraft's reliability, coupled with the crew's expertise, underscores the importance of preparation and teamwork in the face of adversity.

The lessons learned here extend beyond a single mission. Every SAR case in Alaska is a microcosm of the larger challenges faced by those who work in this environment. The need for preparation, vigilance, and adaptability cannot be overstated.

This past winter, I had the privilege of attending the Ted Stevens Arctic Regional Security Orientation Course, a program designed to foster discussion,

The striking formations of the Aghileen Pinnacles are just 20 nautical miles to the east of Cold Bay, Alsaka, and rise to 4,500 feet. Coast Guard photo by LT Kyle Jackson

intellectual curiosity, and critical thinking among security and defense practitioners. The course delves into the environmental, historical, geopolitical, and strategic challenges facing the Arctic region—an area of growing global significance.

Alaskan SAR operations are poised to face increasing challenges as the transformation of the Arctic accelerates. The retreat of sea ice is opening new trade and fishing routes, leading to a surge in vessel traffic through the Bering Sea. This heightened activity will necessitate an expanded Coast Guard presence and enhanced SAR capabilities to meet the demands of a rapidly evolving operational landscape. Additionally, the intensification of Arctic storms will further complicate missions, increasing both their frequency and complexity.

To effectively adapt to these emerging challenges, the Coast Guard must invest in advanced training, cutting-edge technology, and strengthened international collaboration with Arctic nations. The evolving role of the Coast Guard in the region underscores the critical need for vigilance and preparedness in safeguarding one of the most extreme and rapidly changing environments on Earth.

The stakes in the Arctic are high, where the balance between opportunity and risk is delicate. As ice continues to recede and human activity increases, the Coast Guard will remain at the forefront—protecting lives, facilitating commerce, and preserving the fragile Arctic ecosystem. Ensuring long-term safety and security in this dynamic region will require not only greater resources but also a strategic reevaluation of operational approaches.

From navigating snow squalls to preparing for an evolving Arctic landscape, every mission in Alaska reinforces the importance of readiness, adaptability, and maximizing the potential of our aircraft. Though this mission covered a short distance, it encapsulated the unique challenges and rewards of operating in one of the world's most remote and unforgiving regions. Cold Bay and its extremes serve as both a proving ground and a reminder of the resilience required to operate in the Last Frontier.

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Coast Guard Arctic District's Area of Responsibility

Map of the Coast Guard Arctic District, including its area of operations and associated Arctic boundaries. Source: U.S. Census Bureau; U.S. Coast Guard; Arctic Research Commission; Statistics Canada; UN Office for the Coordination of Humanitarian Affairs (map data) | GOA-24-106491

The state of Alaska is nearly 665,500 sq mi in area and just a small portion of the U.S. Coast Guard Arctic District's area of responsibility, which encompasses more than 3.8 million sq mi and nearly 47,500 miles of shoreline throughout Alaska and the Arctic. For comparison, the Lower 48 is nearly 3.2 million total sq mi.

The Geopolitical Sprint to Arctic Resources

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Melting sea ice in the Arctic is creating a host of new maritime opportunities—and problem sets—for the eight nations with land territories in the Arctic and other states with Arctic interests.[1] Based on current predictions, the Arctic will be seasonally ice-free by 2035, opening up access to unspoiled natural resources and shipping routes.[2] As northern ocean waters become more accessible, the Arctic's importance to the geopolitical objectives of northern nations will continue to surge.

Arctic Governance and Cooperation

Arctic governance is essential for effective resource management but, unique Arctic fisheries and territorial claims complicate effective, cooperative governance. Governance over the seas in the region is largely driven by the United Nations Convention on the Law of the Sea (UNCLOS) and various regional fisheries management organizations and is facilitated by the Arctic Council—the primary body for regional cooperation.

UNCLOS, colloquially referred to as the Law of the Sea, is a United Nations treaty that serves as the legal framework for both resource use and navigation of the world's oceans.[3] UNCLOS decrees that countries have sovereignty over their territorial seas, typically 12 nautical miles from land, and have "sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources" in their exclusive economic zone (EEZ).[4]

Generally, Arctic waters not lying inside any country's 200 nautical-mile EEZ do not fall within any one nation's sovereignty or authority to regulate. However, under UNCLOS Article 76, countries can make an extended continental shelf (ECS) claim for seabeds extending beyond 200 nautical miles if they can scientifically demonstrate that the seabed is a natural extension of their landmass. A successful ECS claim gives the coastal state sovereign rights over the seabed and subsoil beyond 200 nautical miles—but not the water column above. The potential to exploit natural resources like gas, oil, and minerals beyond the EEZ has great economic allure for Arctic nations, and like emerging fisheries, will increase traffic in the region. Unsurprisingly, multiple nations have already applied or have begun compiling detailed scientific records in preparation to support their bid to claim additional seabed rights beyond their EEZ.[5]

Conspicuously missing among the group of nations that have formally requested recognition of an ECS through the UNCLOS process is the United States. That is not a coincidence. Unlike most other Arctic nations, the United States never ratified UNCLOS—in large part due to concerns that UNCLOS would unduly interfere with United States' autonomy in future deep seabed mining activities.[6] So while the United States recognizes and follows provisions of UNCLOS as customary international law, it has not submitted an ECS claim to the scientific body that reviews submissions under the Convention.[7]

The Arctic states include the United States, Canada, Denmark, Finland, Sweden, Iceland, Norway, and Russia.

Many experts and officials have advocated for United States ratification of UNCLOS because it would ensure international recognition of United States' ECS claims and guarantee the nation a seat at the international table during the discussions that shape international guidelines for seabed mining. It would also serve to counterbalance China's heavyweight influence in those discussions. However, others argue that the United States should remain non-signatory and

forge ahead under existing legal frameworks, negotiating bilateral treaties with neighboring Arctic nations as necessary along the way to demarcate the boundaries of the continental shelf.[8]

In any case, the United States is actively accruing data and technology to support future seabed mining activities on its continental shelf inside and outside of the EEZ. Bolstering those initiatives is Executive Order 14285 released in April 2025 that directed expedited review of seabed mineral exploration licenses and called for strengthening allied and industry partnerships to counter China's mounting influence over mining of increasingly valuable seabed minerals.[9]

In many cases, there are multiple countries vying for claims to the same subsea natural resources.[10] For nations who are signatory, UNCLOS contains a recipe for arbitrating competing and overlapping claims. However, increased Arctic access is likely to further intensify territorial disputes as countries race to seize vast economic opportunities and contend for greater control of resources in the region, including the enormous reserves of oil and natural gas, and minerals that hold the key to military defense and economic growth.

The Arctic Council, established in 1996, plays a critical role in these disputes. The Arctic Council is composed of the eight states with land territory in the Arctic, as well as participant organizations and observers. Through multiple working groups, it aims to create a more unified approach for managing natural resources and sustainable development of the Arctic.[11] Notably, the Arctic Council specifically excludes security and military objectives in its bid to resolve issues through cooperation, coordination, and interaction.

After the start of the Russia-Ukraine conflict, collaboration with Russia in the Arctic Council was paused, which resulted in a number of studies and media outlets questioning the Arctic Council's future viability.[12] However, Arctic Council working groups have re-engaged with Russian colleagues in limited capacities—a key step in transcending global geopolitics to focus on regional cooperation and stability.[13] In this sense, the Arctic Council and its members continue to succeed in proliferating a long-view approach to Arctic management.

And, while the Arctic Council has inculcated peace and stability in the region, the Arctic is not immune to the geopolitical pressures felt in other parts of the globe.

Geopolitics of IUU Fishing

Competition for sources of protein, as well as "gray zone" activities increase the likelihood of expanded IUU fishing activities in the Arctic. While not as well studied as IUU fishing impacts in other regions, the preservation of fish stock in the Arctic is an increasingly important strategic consideration for many countries, including the United States.

The 2024 Alaskan commercial salmon harvest was approximately 450 million pounds—the lowest number of pounds harvested on record.[14] While overfishing and warming temperatures are the more conventionally considered contributors to fish stock challenges, the precipitous drop in fish catch implies that more insidious factors may be lurking under the surface. Researchers and policy officials are more often considering potential impacts of IUU fishing and foreign pressures in the region as possible culprits.[15]

Notably, Russia and China have increased their presence in the region and its adjacent waters.[16,17] Russia, with its expansive Arctic ambitions, and China, with its growing interest in the region's resources, have raised U.S. national security alarms.

Reports indicate that fishing vessels may be operating

On October 24, 2024, CGC *Bertholf* transits Glacier Bay, Alaska, as it returns from a patrol that took its crew as far north as the Arctic Circle to patrol the maritime boundary line between the United States and Russia and support U.S. strategic interests in the northern Pacific Ocean. Coast Guard photo by Troy Spence

unlawfully in Alaskan waters, exploiting inherent challenges with enforcement in vast Arctic-adjacent oceans.[18] While illegal fishing is challenging enough for fish stock management, unreported or under-reported catch adds salt to the wound by skewing the data that scientists use to set catch limits the following year.[19]

Multiple studies have uncovered extensive fish catch underreporting by Chinese fishing vessels and transshipment vessels in the Pacific Northwest—in some cases reporting less than half of the fish caught.[20] Having depleted fish stocks domestically, China looks to oceans around the globe to fuel its rising demand for seafood. A growing number of cases suggest that Chinese vessels deliberately switch off their Automatic Identification System (AIS) transponders, making it difficult to track their movements.[21,22] Satellite tracking data shows that fleets cluster along the edges of maritime boundaries, moving deeper into other countries' EEZs under the cover of night.[23]

China's distant water fishing fleet not only impacts the international seafood market, it flouts international sovereignty under UNCLOS. The disruption caused by China's industrialized fishing operations extends to international seafood supply chain markets, where illegally caught fish drive lower prices that disadvantage local fisherman operating under stricter regulations.

Even more sinister than global food supply impacts are potential international security concerns. While fishing vessels are not the first thing that come to mind when considering maritime security concerns, use of distant water fishing fleets as a geopolitical tactic is becoming commonplace.

In parts of the world, China has become known for its "shadow fleets" of fishing vessels. These fishing fleets operate under the guise of commercial activity while skirting international law to expand China's maritime influence and economic vitality.[24] Actively blurring the lines between economic enterprise and state ambition, China's distant water fishing fleet does not merely seek fish. Fishing vessels are used to establish a persistent maritime presence that challenges regional sovereignty and pushes the boundaries of international law.[25] It's reasonable to expect that these practices will continue marching towards the unspoiled fishing grounds and shorter shipping routes offered by the Arctic.

The ownership and operational control of China's distant-water fishing fleet is both complex and opaque, but is often heavily subsidized by the government, allowing the fleet to operate in international and foreign waters at minimal cost.

Many Chinese-flagged fishing vessels and their crews are members of the People's Armed Forces Maritime Militia (PAFMM), or "maritime militia." Beijing describes PAFMM as "an armed mass organization composed of civilians retaining their regular jobs."[26,27] While members of this force can operate as independent civilian fishermen, PAFMM receives special training and funding to support military objectives that aid China in distorting the rules of freedom of navigation, buttressing maritime claims, and extending economic and surveillance reach across the globe.[28] Many experts classify this use of fishing vessels to subvert economic and environmental restrictions as a "gray zone" activity between peace and war in the Law of Armed Conflict.[29]

China's shadow fleet pushes the boundaries of international law.

Global Action Against IUU Fishing

IUU fishing is a global issue, and the Arctic is no exception. Single-nation solutions offer little return on investment in terms of long-term benefit. Collaboration with other states with Arctic interests, including Russia, is an important piece to deconflicting Arctic resources.

The Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean (CAOFA), which both China and Russia signed, is a recent major step in collective preservation of Arctic protein resources. CAOFA acts much like a temporary moratorium on commercial fishing in the Central Arctic Ocean with a goal of preventing strain on fish stocks prior to fully understanding their health and capacity, as well as their interconnectedness to other regional and global fisheries.[30]

CAOFA, and the urgency with which it was signed, is an indicator of anticipated increases in vessel traffic in the Arctic as demonstrated by recent trends already showing a dramatic uptick in activity. The Arctic Council's Protection of the Arctic Marine Environment (PAME) Working Group's 2025 update reported a 37% increase in Arctic maritime traffic from 2013to 2024. Notably, of all Arctic maritime traffic observed over this period, 39% were fishing vessels.[31] This surge will increase the need for continued governance, regulation, enforcement, and international collaboration on other maritime functions like search and rescue and environmental response.

In addition to becoming a signatory to CAOFA in recent years, in April 2025, China took a much sought-after step by becoming the 82nd party to the Food and

CGC *Polar Star* crewmembers qualifed in ice rescue ensure a safe path to the water for their team prior to the crew participating in ice rescue training in the Bering Strait in January 2021. The training was part of a mission to project power and support national security objectives throughout Alaskan waters and into the Arctic. Coast Guard photo by Petty Officer 1st Class Cynthia Oldham

Agriculture Organization's Agreement on Port State Measures (PSMA), an agreement designed to eliminate IUU fishing globally.[32] The PSMA requires signatory states to act as a check valve between fishing vessels and global seafood markets by requiring proof of vessel registry and denying port entry to vessels suspected of illegal activity.[33] Beyond introducing regulations for foreign vessels entering Chinese ports, China's fishing vessels can now be inspected when they enter foreign ports of signatory countries to land, unload, or trade.

Recognizing the geopolitical stakes in the Arctic and abroad, the United States has also taken decisive steps to combat IUU fishing, both domestically and internationally. In 2022, President Joe Biden signed the National Security Memorandum on Combating IUU Fishing and Associated Labor Abuses, or NSM-11. The memorandum directed agencies to use the "full range of existing conservation, labor, trade, economic, diplomatic, law enforcement, and national security authorities" to address the multifaceted challenges presented by IUU fishing around the world.

More recently, in April 2025, President Donald Trump released Executive Order 14276 titled Restoring American

Members of the CGC *Polar Star* deck department work in below-freezing temperatures to remove ice from the ship's deck and deck equipment while underway in the Chukchi Sea in December 2020. The nearly 50-year-old heavy icebreaker was underway for a months-long Arctic deployment to protect the nation's maritime sovereignty and security throughout the region. Coast Guard photo by Petty Officer 1st Class Cynthia Oldham

Seafood Competitiveness.[34] The executive order discusses the importance of bolstering the American seafood industry by targeting unfair trade practices by foreign nations and reducing regulatory burdens on the national fishing fleet.

IUU fishing, globally and in the Arctic, is more than a resource issue. It's a multifaceted challenge intersecting with global geopolitics, economic interests, and national security. Mitigation requires robust international collaboration as well as substantial investment in the monitoring and protection of the Arctic region.

Race to Lead Arctic Capabilities

As the Arctic's strategic value continues to surge, nations are considering new investments to secure their spot in Arctic security, shipping, and resource exploitation. In response to Russian and Chinese Arctic influence, the United States, Canada, and Finland entered into the ICE Pact Agreement in 2024—a trilateral maritime security agreement revolving around shared goals to advance polar icebreaker production.[35]

Similarly, the United States Coast Guard is gradually moving forward on revitalizing its small, aging icebreaking fleet. Final approval to begin construction on a polar security cutter (PSC), the first heavy polar icebreaker to be constructed in the United States in more than 50 years, was received in December 2024.[36] Both ICE Pact and the PSC are notable advances in U.S. Arctic capabilities, bolstering regulatory, enforcement, search and rescue, and environmental response missions.

Given that only 0.13% of global shipbuilding capacity resides in North America, it is unsurprising that other nations are outpacing the United States on the polar-capability marathon.[37] Both China and Russia operate more polar-capable vessels than the United States, and in 2024, China completed a rapid 10-month construction on its first Arctic-capable research vessel designed for deep-sea exploration.[38]

As the Arctic continues to evolve geopolitically, the international community must prioritize a rules-based resource extraction to ensure long-term sustainability and global security.

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Endnotes:

1. Arctic.noaa.gov
2. See https://www.pmel.noaa.gov/arctic-zone/future/bib/EarthsFutureJEO.pdf (NOAA research paper)
3. https://www.un.org/depts/los/convention_agreements/convention_overview_convention.htm#:~:text=by%20%22*%22.,The%20United%20Nations%20Convention%20on%20the%20Law%20of%20the%20Sea,the%20oceans%20and%20their%20resources.
4. UNCLOS EEZ cite
5. https://www.thearcticinstitute.org/wp-content/uploads/2017/06/TAI-Infographic-ContinentalShelfClaims.pdf
6. Unmoored from the UN: The Struggle to Ratify UNCLOS in the United States - The SAIS Review of International Affairs
7. https://www.highnorthnews.com/en/us-initiates-extended-continental-shelf-claims
8. heritage.org/global-politics/commentary/7-reasons-us-should-not-ratify-un-convention-the-law-the-sea
9. Unleashing America's Offshore Critical Minerals and Resources – The White House
10. https://www.thearcticinstitute.org/wp-content/uploads/2017/06/TAI-Infographic-ContinentalShelfClaims.pdf
11. The Arctic Council, a Quick Guide, (3rd Ed. (2023)
12. West, Russia manage limited cooperation in Arctic despite chill in ties | Reuters
13. "Without Russia, the Arctic Council Will Not Survive"
14. 2024 Salmon Harvest Summary: Press Release, Alaska Department of Fish and Game
15. Navigating Troubled Waters: Combating Alaskan Commercial Fishing Declines and Rising Global Threats | Wilson Center
16. U.S. Coast Guard encounters joint Chinese Coast Guard, Russian Border Guard patrol in Bering Sea > United States Coast Guard News > Press Releases
17. China Increasing Interest in Strategic Arctic Region > U.S. Department of Defense > Defense Department News
18. Hot spots of unseen fishing vessels | Science Advances
19. Move the IUU Fight Up the Food Chain | Proceedings - November 2023 Vol. 149/11/1,449
20. See e.g., Yoshioki Oozeki et al.,"Reliable Estimation of IUU Fishing Catch Amounts in the Northwestern Pacific Adjacent to the Japanese EEZ: Potential for Usage of Satellite Remote Sensing Images," Marine Policy 88 (February 2018): 64–74.
21. How China's Expanding Fishing Fleet Is Depleting the World's Oceans - Yale e360
22. Hundreds of fishing fleets that go 'dark' suspected of illegal hunting, study finds | Fishing | The Guardian
23. https://sundayguardianlive.com/top-five/silent-invasion-chinas-fishing-fleet-is-militarising-the-indian-ocean#
24. https://sundayguardianlive.com/top-five/silent-invasion-chinas-fishing-fleet-is-militarising-the-indian-ocean#
25. China's distant-water fishing fleet: scale, impact and governance | ODI: Think change
26. Fishing for Trouble: Chinese IUU Fishing and the Risk of Escalation | Proceedings - February 2023 Vol. 149/2/1,440
27. Luo and Panter, "China's Maritime Militia and Fishing Fleets." (2021) China's Maritime Militia and Fishing Fleets
28. Id.
29. China's Maritime Militia and Fishing Fleets
30. The Central Arctic Ocean Fisheries Agreement – what it is, is not and might be - WWF Arctic
31. 2025 Polar Maritime Seminar | PAME
32. China's ratification of Port State Measures Agreement marks a "concrete measure" in battle against IUU | SeafoodSource
33. China joins major treaty to curb illegal fishing | Dialogue Earth
34. Restoring American Seafood Competitiveness – The White House
35. ICE Pact | Homeland Security
36. Coast Guard is building nation's first polar security cutter > United States Coast Guard > Latest Acquisition News
37. 360° View of America's "ICE Pact" Polar Icebreaker Partnership with Canada and Finland | Wilson Center
38. China Delivers Arctic-Capable Research Vessel, Expanding Polar Presence

Maritime Search and Rescue Across the Last Frontier

by LT Matt Naylor
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On New Year's Eve December 2019, the 130-foot fishing vessel *Scandies Rose* punched through a winter blizzard along the western Gulf of Alaska. She was transiting from Kodiak to the rich fisheries of the Bering Sea with a load of nearly 200 combination crab pots stacked onboard the main deck. With a crew of seven seasoned fishermen onboard, the vessel faced troubling weather forecasts along its route, including sustained winds between 34 and 64 knots and a freezing spray advisory—initially not a major concern for the practiced captain with many years of experience in Alaskan waters.

However, around 10 p.m. that evening, Coast Guard Communications Command (COMMCOM) Kodiak received a distress call on the high frequency (HF) radio band. "Mayday, mayday, mayday…*Scandies Rose, Scandies Rose, Scandies Rose*…we are rolling over." This message and the vessel's position were passed to the Coast Guard's Arctic District command center to coordinate search and rescue (SAR) operations.[1] This transmission by the captain was the only transmission the Coast Guard received from the vessel that night.

While similar to other cases, the *Scandies Rose* incident involved complicating factors. The vessel was less than 3 nautical miles (nm) from land, yet there was no very high frequency (VHF) radio coverage nearby. COMMCOM Kodiak's HF monitoring was the only reason the Coast Guard received the transmission.

COMMCOM, Kodiak's HF monitoring, was discontinued in Spring 2022.

Though the distance from Coast Guard rescue aircraft in Kodiak to the *Scandies Rose* was approximately 170 nm, or about 90 minutes transit under normal circumstances, weather and geography caused delays. The heavy blizzard conditions and rugged terrain en route demanded extra fuel and additional mission planning, pushing the launch beyond the normal parameters of 30 minutes from distress notification. While multiple assets were dispatched, the first Coast Guard helicopter on scene didn't arrive until about four hours after the mayday call. The aircraft commander described the route as the "most challenging flight of his career."[2]

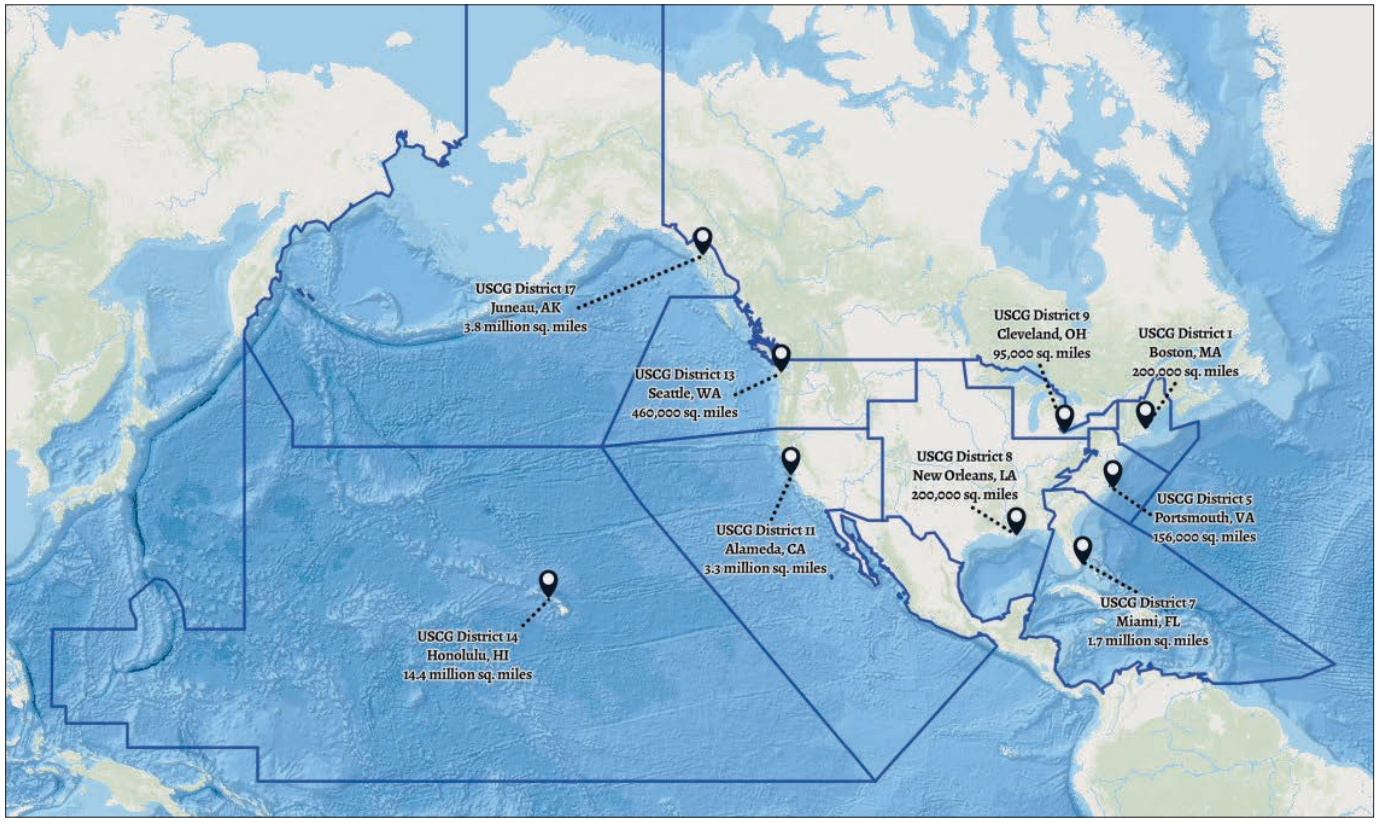
Ultimately, the SAR operation led to the harrowing rescue of two crewmembers from a life raft deployed as the vessel capsized. Tragically, the other five crewmembers, including the captain, were never found.

The realities of this case represent just a handful of the challenges faced daily by Coast Guard SAR responders across Alaska.

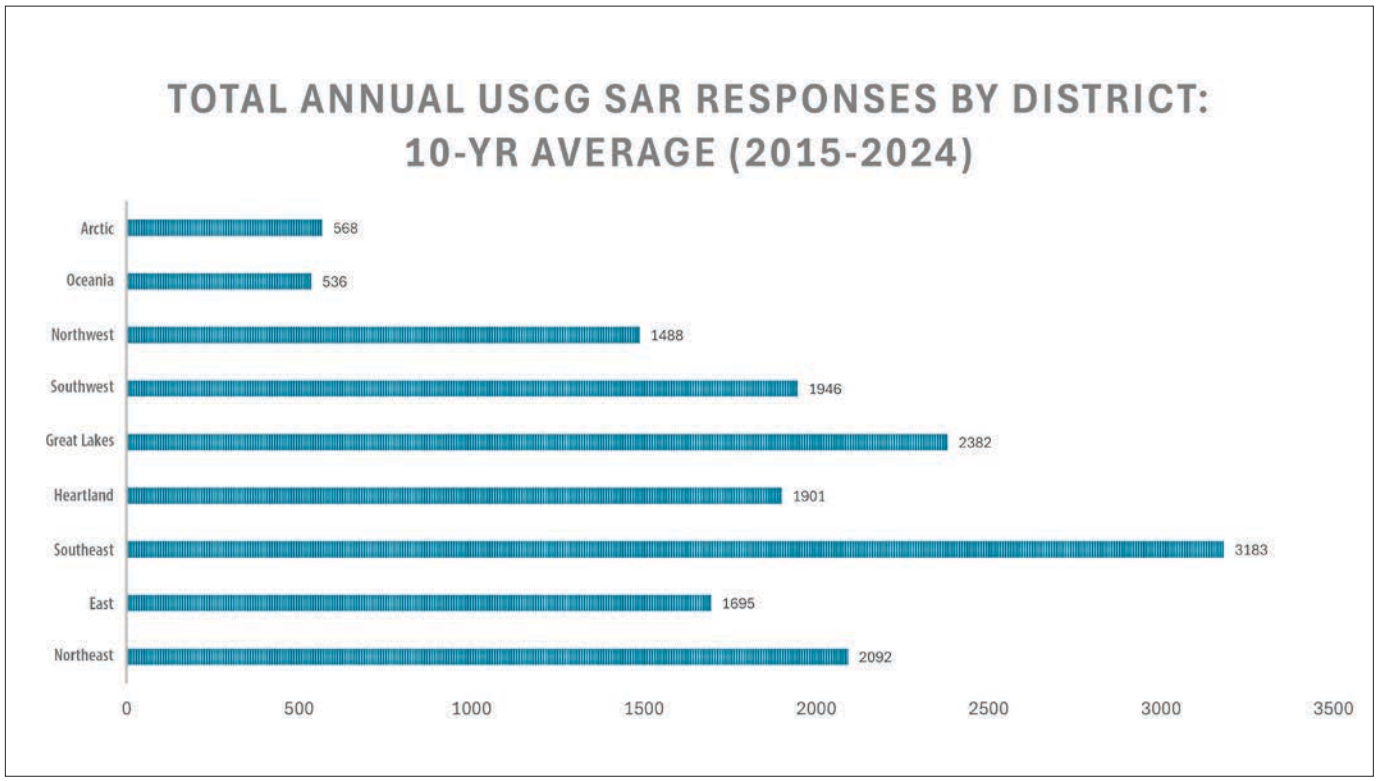
Search and Rescue by the Numbers

Across the Coast Guard, daily operations fall under the oversight of nine districts and their subordinate commands representing different geographic regions of the country with the Arctic District covering the state of Alaska and its surrounding waters. The Arctic District's area of responsibility (AOR) is the second largest of any Coast Guard district, encompassing a maritime area of more than 3.8 million square nm and over 47,000 nm of shoreline. The district shares SAR responsibilities with two subordinate sectors—Sector Southeast Alaska covering the southeast portion of the state and Sector Western Alaska and U.S. Arctic covering south-central and western Alaska to include Prince William Sound and Kodiak Island. The total area of maritime SAR coverage in the region is enough to encompass nearly all Coast Guard AORs combined, excluding Southwest and Oceania districts.

In a typical year, the Arctic District responds to about 570 SAR cases representing a 10% increase since 2015 and steadily growing. By comparison, the East District—just 4% the size of the Arctic District despite encompassing six states along the East Coast—responds to an annual



With 3.8 million square miles in its area of responsibility, the Arctic District, headquartered in Juneau, Alaska, is second only to the Honolulu-based Oceania District in area. It is so expansive that the remainder of the Coast Guard districts' AORs fit within it. Coast Guard map



The Coast Guard's Arctic District may not see the most search and rescue response requests, but those they do receive can be far more complex and dangerous given the often remote locations and harsh weather. Coast Guard chart

average of nearly 1,700 SAR cases across four sectors. In fact, in an average year, the Arctic District number of SAR cases is the second lowest of all Coast Guard districts.

Why does this matter? Because the numbers alone don't tell the full story.

Despite the relatively low number of maritime SAR responses in the region, the stakes tend to be much higher and the challenges more pronounced. Many mariners in Alaska are as tough as they come, and SAR responders know that when they call for help, the situation is serious. Inclement weather, communications limitations, AOR size and distance to respond, asset availability and capability, prevalence of non-routine missions, increased maritime traffic in the Arctic region, and remoteness are just a few of the unique challenges faced across the Arctic District AOR. These factors raise the stakes of SAR response and are difficult to accurately quantify and correlate.

Unique Challenges

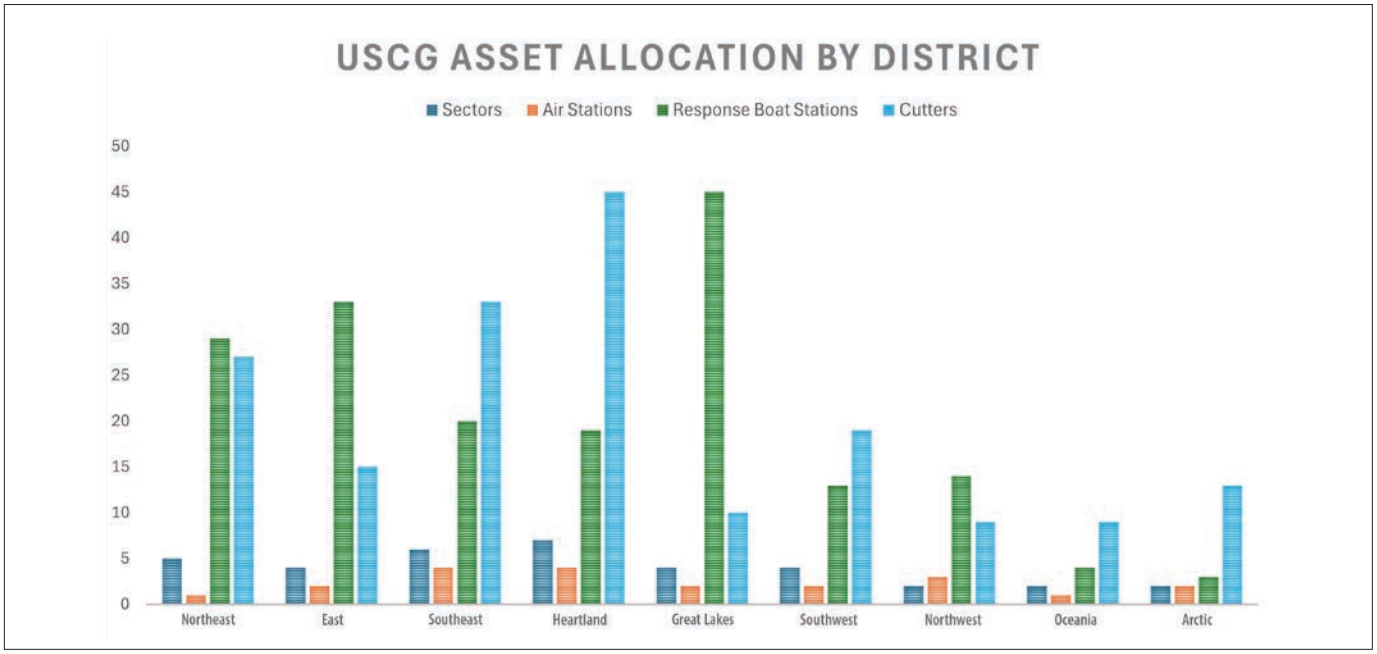
Weather

Weather is by far the most influential consideration when planning a SAR response in Alaska. Based on historical trends from the 1970s to 2020, many coastal areas that see common Coast Guard SAR operations exhibit maximum annual wind speeds as high as 95 knots.[3] Hurricane-level winds and storms are normal across Alaska, especially in the winter months. Low visibility—3 statute miles or less—is common across the state, particularly in coastal and mountainous areas[4] where most SAR responses typically occur. Precipitation, which often further hinders visibility, has increased steadily across the state each decade since the 1950s, likely as a result of shifts in weather patterns and loss of sea ice over the years.[5] Inclement weather is a common enough hindrance that it is nearly always factored into a SAR response. Consequently, SAR missions require deliberate risk management discussions surrounding weather limitations along with extended response times. The winter months are notable for a marked loss of daylight hours. At the winter solstice, there are barely more than 6 hours of daylight in southern portions of the state. Utqiaġvik, 330 miles north of the Arctic Circle and the northernmost point in Alaska, is in nearly complete darkness from November to January.[6] This further increases the risk to response crews across the AOR when distress calls are received during the winter.

Communications

The critical lack of reliable communications capabilities

Crews from Coast Guard Air Station Sitka, CGC Douglas Denman, Sitka Mountain Rescue, and Sitka Fire Department conducted a week-long search and rescue exercise in Sitka, Alaska, in May 2023. Crews tackled scenarios ranging from lost hunters to an avalanche. The exercise culminated with a mass-casualty event involving multiple agencies responding in concert to a scene with 40 survivors in distress. Coast Guard courtesy photo



Each asset listed varies in size, resource number, and crew complement. Coast Guard chart

sets the Coast Guard's Alaska SAR operational region apart from others. Most of the state's shorelines are remote with no communications or manmade structures in sight and cellular and VHF communication are only available within the immediate vicinity of the sparsely scattered population centers. Subsequently, terrain interference and heavy cloud cover make satellite communications unpredictable.

In all Coast Guard districts except Alaska, VHF coverage falls under Sea Area A1, in which more than 90% of the offshore area, up to 20 nm from territorial baselines, is covered by the Coast Guard Rescue 21 VHF monitoring system.

In most areas in the Lower 48, Coast Guard sectors can rent broadcast space on any number of well-maintained, commercially available towers. In the wilds of Alaska, very few of these towers exist with line-of-sight marine coverage. The Coast Guard maintains and monitors a total of 34 VHF towers across the state, most of which are in remote backcountry locations inaccessible except by air or sea, and only when the weather allows. These "high sites" run off a mixture of generators and solar panels. During summer months, the solar panels enjoy 18-20 hours of daylight. Conversely, winter allows for only 4-6 hours of daylight and the frequent snow and ice cover render the solar panels less effective. Year-round, the generators are at the mercy of the weather for maintenance and fuel replenishment.

The high sites also lack critical response enhancement characteristics like VHF direction finding, a capability present in all other districts, allowing command and control centers to triangulate positions of distress transmissions. Instead, Arctic District search planners must make guarded assumptions when responding to uncorrelated distress broadcasts, often sending assets with very limited position information to search areas greater than 1,000 square nm.

Asset Availability

To cover an entire AOR of nearly 4 million square nm, Arctic District and its subordinate sectors coordinate SAR missions with two air stations, three boat stations, and 11 ships, some of which are past the end of their projected service lives. The Coast Guard's final three 110-foot patrol boats have recently been decommissioned from their respective homeports in Western Alaska. Apart from Oceania District, all other Coast Guard districts exceed these metrics.

At any given time, and in accordance with statutory mandates, these assets are tasked with carrying out missions other than SAR, including maritime law enforcement and security, border control, counter-drug, and homeland defense operations. Maintenance schedules, including unscheduled maintenance, malfunctions due to age, and staffing shortages are frequent factors limiting asset availability.

Additionally, both air stations maintain a "self-rescue" policy to ensure the safety of their air crews when they're operating far offshore. Typically, if a helicopter is intended to operate more than 100 miles offshore, an additional fixed wing or rotary aircraft and crew are put on standby in case the responding air crew runs into

trouble. This is an essential mitigation factor for risk management, when possible, but also adds to logistical complexity and further limits asset availability for SAR planning.

At any given time, each air station in Arctic District has one helicopter and crew available in a constant readiness status, meaning they're able to takeoff within 30 minutes of notification. The air crews have a fatigue limit of about six to eight hours of flight operations before a mandated 10–15-hour rest period. The limits of these essential safety measures in combination with non-routine missions make it difficult to maintain a full readiness posture for the Coast Guard's maritime SAR mission. Nevertheless, the Coast Guard continues to support these operations for partner agencies despite the limitations, even serving as the primary SAR mission coordinator for land-based aviation rescues across certain regions of the AOR due to a lack of other nearby capable resources.

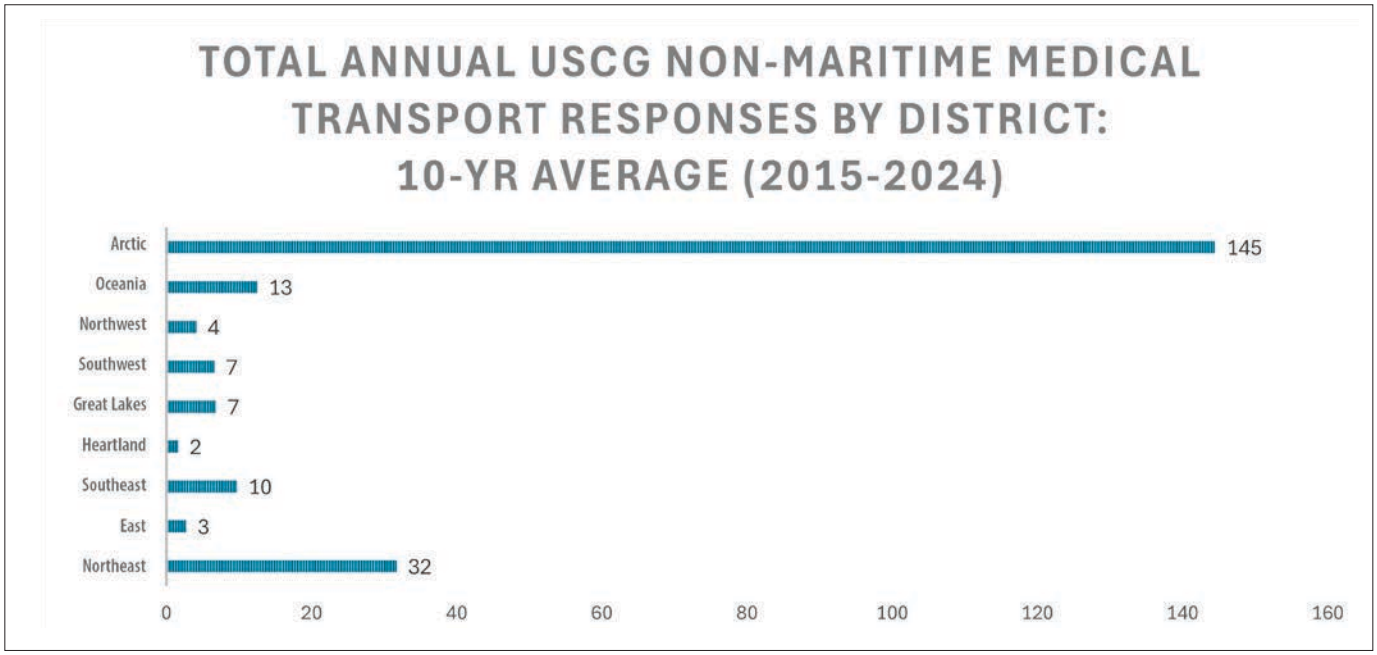
Non-Maritime SAR

SAR missions falling outside regular Coast Guard operations in most other districts—non-maritime medical transports from remote medical clinics, for example—are the norm in Alaska, 98% of which, has been designated as medically underserved and lacking adequate health care staff. It also has a proportionately greater quantity of remote medical clinics without road system access than most other regions of the coastal United States.[7] This means commercial air ambulances are frequently unable to pick up patients from these locations. Whether it's because of a lack of available aircraft and/or weather or daylight restrictions, patients with life-threatening conditions being treated in remote medical clinics rely on the Coast Guard which is often the only organization capable of transporting them to a higher level of care.

With adverse weather and restricted visibility as primary drivers of requests for Coast Guard assistance, these missions create inherent risk for responders. Since 2015, the Arctic District averaged 145 of these missions annually, almost double the annual average of all other districts combined, and the trend is ticking up. Remote clinics are not the only organizations requesting Coast Guard assistance. Land-based aviation rescues are also common for medical transport of injured hikers or hunters and searches for missing people or aircraft. While these non-routine missions are essential for the people of Alaska, they pose unique difficulties in an area where assets are already stretched thin. To add to the inherent risk of flying in poor weather conditions, the rugged mountainous terrain, extreme altitude, and temperature variations helicopters operate in across Alaska regularly push the airframes to limits.

More Traffic, More Distance, More Missions

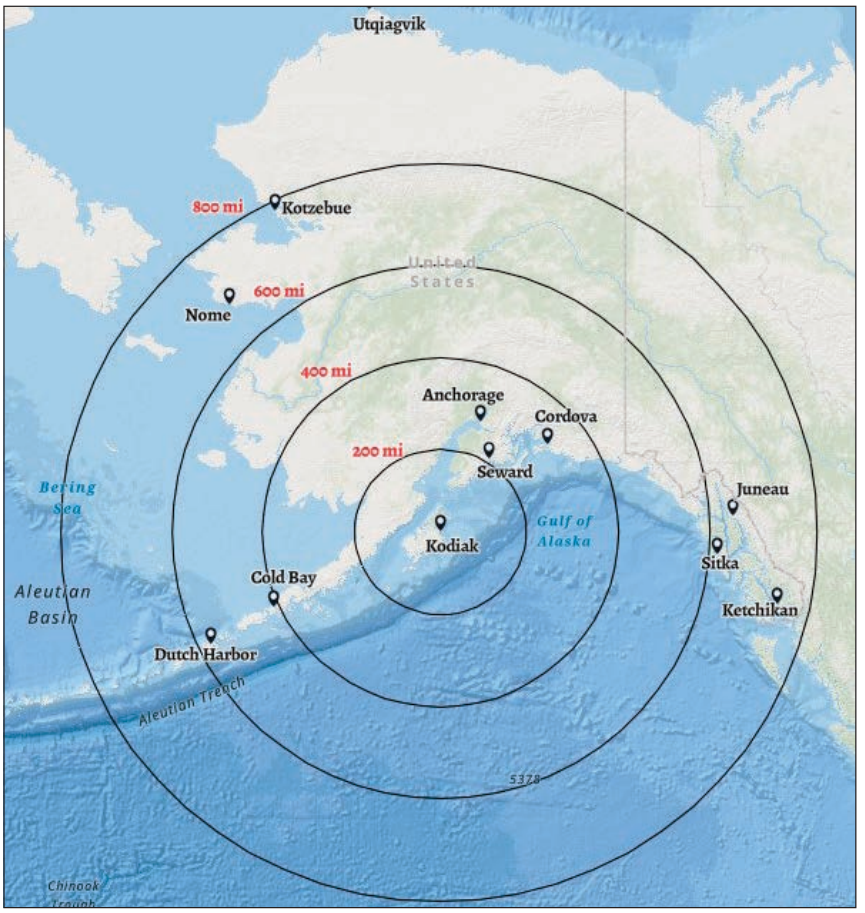
Since 2013, maritime shipping traffic has increased by 37% across the Arctic, with seasonal peak shipping typically occurring in late summer and early fall.[8] The monthly capacity of shipping days in the Arctic has also increased by 7% per year since 2013.[9] Projections of continued sea ice decline indicate that Polar Class 6 ships, those with strengthened hulls and frames, will be capable of year-round Arctic shipping transits by 2070.[10] Currently, the Coast Guard has no year-round presence



Coast Guard graph

or SAR capability in the Arctic. Even seasonal presence is limited to one annual icebreaker deployment and periodic repositioning of two helicopters from Air Station Kodiak to the community of Kotzebue during the summer months. The lack of sustained Coast Guard maritime SAR infrastructure above the Arctic Circle is a looming challenge the Arctic District will have to reckon with as maritime traffic continues to increase each year.

For areas of the AOR below the Arctic Circle, tourism ship traffic, particularly from cruise ships, has also increased over the years, with 2024 experiencing a record-setting 1.7 million cruise ship visitors across Alaska.[11] These increases have led to more medical evacuations, often involving adverse weather conditions, dangerous hoist operations, and remote locations, across the district. Of note, 2024 saw the first ever Coast Guard medevac from a commercial vessel in the Arctic, some 20 nm north of Utqiaġvik—the northernmost city in Alaska.



The members of the Coast Guard's Arctic District lament the "tyranny of distance." Distances between someone needing assistance and the closest available asset often exhaust crew's fatigue limits and/or the assets' limits. Coast Guard map

There is a common phrase across the Arctic District lamenting the "tyranny of distance." Fuel and fatigue limitations are a regular element of extended response times for aircraft and response boats. A 650-mile helicopter transit from Kodiak to the Arctic town of Nome would require, at minimum, one stop for refuel and may cause the helicopter crew to reach fatigue limits upon arrival at their destination. This leaves the aircraft unusable for SAR until a relief crew is available.

Factored into long-range SAR planning, this involves multiple ready crews and aircraft to carry out the mission, often adding hours or days to the operation, not to mention stretching thinner the already sparse flight-ready aircraft and personnel.[12] To mitigate this, Arctic District maintains seasonal forward operating sites and aviation support facilities in Cold Bay, Kotzebue, and Cordova during periods of peak maritime activity. However, this can add up to two hours of additional response time for helicopter crews making them unable to maintain an immediate response posture in their respective locations. Cutter support is also limited by distance, especially in heavy weather, and many cutter transits to support SAR operations take up to a full day or longer. Boat stations are also subject to restricted AOR boundaries to prevent boat crews from transiting too far from home bases, as they are not designed for sustained operations lasting longer than a day.

Recent Successes

Despite the many challenges this district faces, ongoing partnerships and recent successes are indicative of the potential for progress. The Coast Guard is signatory to nine memorandums of agreement or understanding with key partners across the AOR, including the Air Force, Alaska State Troopers (AST), and North Slope Borough SAR. It also maintains working relationships with foreign nations' rescue coordination centers like those of Japan, Canada, and Russia. These relationships have been instrumental in ensuring enhanced safety of mariners across Alaska, allowing for collaboration, information sharing, and mutual assistance. The Air Force is primarily responsible for inland SAR, while the state troopers are primary for all other inland SAR and maritime SAR out to 3 nm from shore. A lack of adequate resources drives frequent agency assistance requests to the Coast Guard.

Each year, Coast Guard SAR responses directly

benefit from the assistance of Air Force units' location tracking via radar, reinforcement from the Civil Air Patrol volunteer auxiliary, and aircraft augmentation for long-range SAR operations. AST units also assist with local knowledge and presence in remote communities, access to contact information databases for missing persons, boat and aircraft augmentation, and activation of local volunteer SAR organizations which further complement Coast Guard assets. These force multipliers are a boon to Arctic District SAR operations, and the entire AOR benefits from the partnerships.

The Coast Guard recently collaborated with local and industry partners to reduce the risk and volume of cruise ship medevac responses across the district, which has already seen positive effects. After working with the cruise ship industry to implement a new procedure for requesting medevacs, cruise ship staff were able to better understand Coast Guard capabilities and provide more information on patient ailments. Thanks to better communication with industry partners and commercial providers, the Coast Guard can better prioritize critical maritime SAR and limit use of resources for low priority cases. The result has been 15% fewer cruise ship medevac requests in 2024 than the previous year.

Each SAR case is unique, but one recent case highlights both the AOR's inherent challenges and the successful deployment of resources and partnerships. In January 2025, the Arctic District command center received a satellite-based distress alert from an Emergency Position-Indicating Radio Beacon (EPIRB) in the Gulf of Alaska, approximately 20 nm south of Kodiak. The EPIRB was registered to a 58-ft fishing vessel with two people

Helicopter crews often have to navigate complex island terrain in Southeast Alaska, like this mountain pass, to conduct search and rescue missions. Coast Guard photo by LCDR Wryan Webb

onboard and was automatically activated when the vessel developed a hull leak and started to capsize in seven-foot seas.

The EPIRB position happened to be in a communications "dead zone" where Coast Guard SAR planners did not have VHF radio coverage and thus could not communicate directly with the vessel in distress. Leveraging vital partnerships, the Arctic District and its subunits coordinated a joint response involving the AST, the Marine Exchange of Alaska (MXAK), and local "Good Samaritan" fishing vessels in the immediate area. A Coast Guard helicopter and local AST vessel were dispatched to the scene while radio coverage was provided by MXAK to divert several nearby fishing vessels to assist with the rescue. Through this collaboration, a nearby fishing vessel rescued the two survivors from a life raft. They were transferred to the AST vessel, from which they were hoisted by the Coast Guard helicopter and transported safely to local emergency medical services in Kodiak. This case is a typical example of collaboration, coordination, and overcoming unique obstacles to achieve mission success in the Alaska AOR.

Challenging the Status Quo

Despite recent successes and efforts to improve operational effectiveness, most units have, necessarily, come to accept the "tyranny of distance" and other limitations as part of the status quo in this remote AOR.

The challenges faced by Alaska-based Coast Guard units, however, are not going to disappear. Instead, they are only likely to increase as the environment continues to shift. To respond to the region's challenges, the Arctic District needs improvements to continue executing the mission entrusted to its personnel.

Crucially, the Coast Guard must be able to provide more adequate communications coverage across the AOR. Currently unreliable VHF has led to a noticeable uptick in distress notifications received from commercial and recreational vessels via cell phone because of increased accessibility to mobile satellite internet. However, these services are expensive for mariners to obtain and maintain, and due to variations in weather and satellite availability remain an unpredictable method of sending distress notifications. Nevertheless, as this capability expands worldwide,[13] the Coast Guard must embrace new technologies as they become a more reliable source of communication with mariners, especially for areas outside existing VHF coverage. Meanwhile, VHF radio remains ubiquitous and inexpensive for the maritime community.

Conclusion

Maritime SAR across the Last Frontier is an exceptional and unrelenting challenge. Despite a comparatively low quantity of overall SAR cases compared to the rest of the service, the Coast Guard's response posture and resource allocation in Alaska should not be dictated by number of cases alone. The complexity of the mission in this remote AOR necessitates a more comprehensive look at the underlying impacts of asset allocation and a reconsideration of the status quo in the face of increasing Arctic maritime traffic and security concerns. In doing so, the Coast Guard will continue to promote an always ready workforce in a dynamic and unforgiving environment for decades to come.

About the author:

LT Matt Naylor managed search and rescue (SAR) operations across Alaska from 2019 to 2025 as a command duty officer and SAR mission coordinator after completing an initial afloat tour on the east coast of the Unites States. He now serves as an international port security liaison officer at Coast Guard Activities Europe in Brunssum, Netherlands. He and his wife of eight years have two energetic outdoor-loving daughters who were born and raised in Alaska.

Endnotes:

1. National Transportation Safety Board. (2021). *Capsizing and sinking of commercial fishing vessel Scandies Rose, Sutwik Island, Alaska*, December 31, 2019 (NTSB/MAR-21/02 PB2021-100924). https://www.ntsb.gov/investigations/AccidentReports/Reports/MAR2102.pdf
2. Ibid
3. University of Alaska Fairbanks. (2025). *Mean/Max wind speeds*. Alaska Climate Research Center. https://akclimate.org/data/mean-max-wind-speeds
4. Pinto, J. O., Megenhardt, D. L., Fowler, T., & Colavito, J. (2020). Biases in the Mesoscale Prediction of Ceiling and Visibility in Alaska and Their Reduction Using Quantile Matching. *Weather and Forecasting*, 35(3), 997-1016. https://doi.org/10.1175/WAF-D-19-0230.1
5. Ballinger, T. J., Bhatt, U. S., Bieniek, P. A., Brettschneider, B., Lader, R. T., Littell, J. S., Thoman, R. L., Waigl, C. F., Walsh, J. E., & Webster, M. A. (2023). Alaska Terrestrial and Marine Climate Trends, 1957–2021. *Journal of Climate*, 36(13), 4375-4391. https://doi.org/10.1175/JCLI-D-22-0434.1
6. Alaska Channel. (2024). *Shortest day in Alaska: Hours of daylight in winter.* ALASKA.ORG. https://www.alaska.org/advice/shortest-day-in-alaska
7. Stanford University. (2024, January 2). *Demographics*. Stanford Medicine. https://geriatrics.stanford.edu/ethnomed/alaskan/introduction/demographics.html
8. Arctic Shipping Update: 37% increase in ships in the Arctic over 10 years. (2024, January 31). *Arctic Council*. https://arctic-council.org/news/increase-in-arctic-shipping/#_ftn1
9. Rodríguez, J. P., Klemm, K., Duarte, C. M., & Eguíluz, V. M. (2024). Shipping traffic through the Arctic Ocean: Spatial distribution, seasonal variation, and its dependence on the sea ice extent. *iScience*, 27(7), 110236. https://doi.org/10.1016/j.isci.2024.110236
10. Min, C., Yang, Q., Chen, D., Yang, Y., Zhou, X., Shu, Q., & Liu, J. (2022). The emerging Arctic shipping corridors. *Geophysical Research Letters*, 49(10). https://doi.org/10.1029/2022gl099157
11. Cruise Lines International Association - Alaska. (2025). *History of Cruise Industry in Alaska*. CLIA Alaska. https://akcruise.org/economy/alaska-cruise-history
12. Hooper, C. (2024, December 15). U.S. Coast Guard Aviation, facing crisis, rethinks strategy. *Forbes*. https://www.forbes.com/sites/craig-hooper/2024/12/15/us-coast-guard-aviation-facing-crisis-rethinks-strategy
13. Maritime Satellite Communication Market Size, Share & Trends Analysis Report by type (VSAT, MSS), by revenue source (Hardware, software, services), by end use, by region, and segment forecasts, 2019 - 2025. (2025). In *Grand View Research* (GVR-4-68038-049-1). https://www.grandviewresearch.com/industry-analysis/maritime-satellite-communication-market

Critical Operations

Smooth Sailing

Prevention's role in the Southeast Alaskan cruise industry

by CDR Brierley Ostrander
Chief of Prevention
Sector Southeast Alaska
U.S. Coast Guard

A cruise through the dramatic, glacier-cut fjords of Southeast Alaska's Inside Passage is a bucket list item for many travelers, and the popularity of this comfortable way to access the region's epic wilderness is rapidly growing. At the peak of the April to October cruise season, upwards of 30 cruise ships per day navigate these waters, with the largest ships capable of carrying more than 6,000 people. But during their Alaskan voyages, few passengers are aware of the quiet, behind-the-scenes role U.S. Coast Guard Sector Southeast Alaska's Prevention Department plays in promoting their safety and security. Unlike many other U.S. cruise ports that serve as departure points for adventures in foreign waters, Southeast Alaska is a destination in its own right. Most cruises in this region take place within U.S. Coast Guard jurisdiction, carefully monitored by the sector's prevention staff.

CGC *Elderberry* crewmembers renew a day board. Coast Guard personnel assigned to the 65-foot inland buoy tender service 285 of Southeast Alaska's 855 aids to navigation. Coast Guard photo

The Prevention Department's vessel inspectors, facility inspectors, investigators, and waterways management experts all work together to keep cruise passengers safe. This takes the form of examining cruise ships, inspecting local tour boats that cater to cruise passengers, investigating accidents, enforcing port security standards, maintaining the navigation aids that mark safe passages, and evaluating the navigational risks posed by expanding port infrastructure projects. This article will briefly touch upon each of these functions, performed by a team of approximately 50 people based in Juneau, Sitka, Ketchikan, and Petersburg, Alaska.

Maintaining The Aids to Navigation System

Many Southeast Alaskan cruises begin in Seattle, Washington, or Vancouver, British Columbia. When the ships cross north from Canadian waters at Dixon Entrance, their bridge officers rely on a complex system of U.S. navigational aids. Buoys, day boards, and lighthouses help guide ships safely between the innumerable rocks and shoals that make the Alexander Archipelago's seascapes simultaneously treacherous and stunning. Two sector subunits have the primary responsibility of maintaining nearly half of Southeast Alaska's 855 aids. Aids-to-Navigation Team Sitka services 114 aids, including many accessible only via helicopter. CGC *Elderberry*, a 71-year-old, 65-foot inland buoy tender, services 285 aids. The rest are maintained by larger buoy tenders reporting to the sector's parent unit, the Arctic District. The work is physically demanding, dirty, and essential to the safety of ships sailing along the sinuous shores of the Inside Passage, which account for more than a fifth of the total U.S. coastline as measured by the National Oceanic and Atmospheric Administration.

Ensuring Facility Security

For northbound cruisers, Ketchikan is often a first port-of-call; 642 cruise ships arrived in 2024, making it

Southeast Alaska's second-busiest cruise port. At each dock where cruise passengers disembark for a day ashore, both in Ketchikan and throughout Southeast Alaska, Coast Guard facility inspectors routinely verify the integrity of a complex system of security measures designed to prevent terrorism and deter other maritime crimes. Through plan reviews, drills and, unannounced inspections, facility inspectors establish continuous compliance with both U.S. and international maritime port security standards. The regulations are scalable, so that operators of ports in smaller communities can work with the Coast Guard to define security measures appropriate for their ports' particular operational realities. The village of Klawock on Prince of Wales Island, which recently revived a disused logging dock by opening it to cruise traffic, is just one example. Coast Guard facility inspectors also investigate occasional breaches of security, seeking ways to further mitigate vulnerabilities while maintaining efficient operations.

Monitoring Environmental Compliance

As cruise ships continue northward between rain-soaked mountainsides whose innumerable waterfalls feed biologically rich coastal streams that, per U.S. Forest Service assessments, spawn more than a quarter of North America's Pacific wild salmon catch, the ships remain subject to layered state, national and international air emissions, and wastewater regulations. Among these are federal wastewater requirements unique to Alaska that set effluent standards far more stringent than those of the region's municipal wastewater treatment facilities. Working closely with the Alaska Department of Environmental Compliance, Coast Guard personnel monitor the discharges via a program of periodic, unannounced wastewater sampling, issuing warnings and fines when they are warranted.

Overseeing Local Tour Boats

In 2024, the 642 cruise ship voyages through the region brought approximately 1.7 million passengers to Juneau, which with 32,000 residents, is Southeast Alaska's largest community and a port-of-call on nearly every regional cruise itinerary. Many of those cruise passengers take day trips on local tour boats that allow more intimate access to whales, waterfalls, and tidewater glaciers. Sector Southeast Alaska's marine inspectors regularly engage with operators of the region's 225 U.S.-flagged small passenger vessels to ensure the vessels meet strict federal requirements and remain continuously fit for service, meaning they're worthy of a certificate of inspection. Marine inspectors in Juneau, and at detachments in Sitka and Ketchikan, work year-round, conducting drydock examinations in the winter in preparation for busy summer tourism operations. Though a portion of the small passenger vessels operate continuously, summer is the operational high point.

Many vessels inspected by other Coast Guard sectors in the winter migrate to Southeast Alaska, adding to the local workload. Marine inspectors, on duty 24 hours a day, seven days a week, are ready to respond to evaluate problems like engine casualties, navigation equipment failures, or hull damage. Though the Coast Guard has the authority to direct unseaworthy vessels to remain at the dock until corrective action is completed, some risks can be mitigated by implementing temporary measures to maintain an equivalent level of safety. Every problem is different, and marine inspectors leverage their broad professional expertise to prioritize passenger and crew safety while working towards solutions that minimize revenue loss for operators whose livelihoods depend on operating every day of the week during the cruise season. Regulatory engagement with industry is personalized and responsive.

Verifying Cruise Ship Compliance

While passengers are on local tours during port calls in Juneau, the cruise ships may be subject to Coast Guard examinations. Though a small number of boutique cruising vessels in the region fly the U.S. flag and sail under Coast Guard Certifications of Inspection, nearly all large cruise ships are registered abroad to countries such as Bermuda, the Bahamas, or the Netherlands, meaning that maritime authorities in those countries have primary responsibility for ensuring that the ships meet national and international safety and security standards. But given the large number of Americans who enjoy cruising, Congress tasked the Coast Guard with performing in-depth compliance verification exams on foreign-flagged cruise ships that embark U.S. passengers in U.S. ports. These daylong exams go above and beyond customary port state control exams that any maritime nation has the authority to perform on foreign merchant ships in their waters. At least twice a year, for the privilege of maintaining access to the vast U.S. cruise market, foreign-flagged cruise ships welcome Coast Guard examiners to test their machinery and navigation equipment, check their fire control and lifesaving systems, verify their environmental compliance measures, and evaluate complex fire and abandon ship drills involving the choreographed efforts of hundreds of crewmembers. The Coast Guard's Cruise Ship National Center of Expertise (CSNCOE) in Fort Lauderdale, Florida, coordinates the ships' exam calendar on a national level, and in 2025, Sector Southeast Alaska will perform more certificate of compliance exams than any other Pacific-area sector, despite having one of the smallest inspections staffs in the country. Cruise ship examiners assigned to Southeast Alaska have an opportunity to become true

Petty Officer 1st Class Mike Sheppard evaluates an abandon ship drill in Juneau, Alaska. Coast Guard photo by CDR Brierley Ostrander

subject matter experts in cruise ship oversight. This led CSNCOE to recognize Sector Southeast Alaska above 36 other Coast Guard sectors with the 2024 Award for Excellence in Cruise Ship Examination.

Assessing Navigational Risk

The cruise ship industry in Southeast Alaska is on a growth trajectory. Though cruise numbers dipped during the height of the pandemic, they quickly rebounded to set new records. As tracked by Cruise Line Agencies of Alaska, between 2019 and 2025 the total annual number of individual foreign-flagged ships cycling regularly through Southeast Alaska during the cruise season increased from 42 in 2019 to 50 in 2025. The total number of passengers traveling through the region increased 30% from approximately 1.3 to 1.7 million. With this growth comes expanding port infrastructure. In addition to recent dock upgrades in Klawock, Sitka, and Skagway, Alaska, two new large cruise dock projects in Juneau are in planning stages. Though the Coast Guard is not a permitting authority for tidelands development, the sector's waterways management team analyzes potential impacts of proposed dock construction on navigational safety for existing waterway users. Per an interagency memorandum of understanding, the Coast Guard provides expert advice to the U.S. Army Corps of Engineers in the form of navigational risk assessments that inform the Corps' permitting decisions. Coast Guard coordination with the Southeast Alaska Pilots Association is especially vital. This collaboration provides a means to capture pilots' professional insights gained from safely guiding large cruise ships to berths at Juneau's four existing cruise docks, while also maneuvering a fifth ship to a federal anchorage in Juneau's narrow Gastineau Channel. While cruise dock construction has become a politically charged issue in the region, the Coast Guard maintains a neutral advisory role.

Investigating Accidents

Sailing west from Juneau out Icy Strait towards Cross Sound, some cruise ships stop at Icy Point, Southeast Alaska's fifth-largest cruise port and a major economic driver for Hoonah, a village of less than 1,000 residents. Other ships turn up from Icy Strait into the remote waters of Glacier Bay National Park. In 2023, a 178-foot U.S.-flagged cruise ship suffered an engine room fire while in the park. The crew used the firefighting tools Coast Guard inspectors had verified a few months earlier,

and skills they'd honed during regular drills required by Coast Guard regulations. Other commercial vessels responded first, including a large foreign-flagged cruise ship, which took the smaller ship's 51 passengers and some nonessential crew on board. A Coast Guard cutter arrived hours later after a lengthy transit and carefully took the much larger disabled vessel in tow to control its shoreward drift until a more capable commercial tug could arrive. Sector Southeast Alaska's marine casualty investigators collected evidence, conducted interviews, and analyzed the incident to synthesize data that, taken together with lessons learned from similar events, may help support future regulatory refinements.

Passengers whose itineraries detour north from Juneau toward Skagway—the region's third busiest cruise port and one of only a handful of Southeast Alaskan communities accessible from the rest of North America by road—sail up a dramatic fjord that was once the final maritime leg on the way to the Klondike gold fields. Most contemporary travelers are likely unaware of the lost passenger liners lying beneath the surface. During the early 20th century, several ships struggling to remain oriented in Southeast Alaska's persistent fog and rain wrecked on reefs or foundered in the complex currents. The worst wreck—SS *Princess Sophia* on Lynn Canal's Vanderbilt Reef in 1918—claimed 364 lives.

During the same period as those gold rush-era tragedies, the RMS *Titanic* played a foundational role in establishing international standards for passenger ship safety. Sector Southeast Alaska's marine inspectors and investigators continue that legacy, diligently enforcing regulatory requirements calibrated to address safety risks identified through investigations into past tragedies. The *Titanic* famously lacked adequate lifeboats. Now, if a cruise ship has an inoperable lifeboat, discovered during regularly mandatory boat checks, the master is required to report it to the Coast Guard, and the ship's total permitted number of crew and passengers will be reduced accordingly. Unlike in 1912, survival craft capacity is assured by law and verified by Coast Guard inspectors.

Keeping Pace with Regional Cruise Industry Growth

The prevention team in Southeast Alaska has expanded very little in the past 20 years, despite a steep increase in cruise ship arrivals. In Sitka, nestled on the far western coast of Baranof Island, where unobstructed Gulf of Alaska winds that would elsewhere be called hurricanes sometimes blast the shoreline, the scope of work facing the small Marine Safety Detachment has quadrupled. The sole qualified marine inspector in Sitka responds to emergent vessel safety compliance concerns in the region's fourth-busiest cruise port. At the same time, the Sitka-based inspector single-handedly conducts nearly a third of Southeast Alaska's small passenger vessel inspections and monitors the region's largest concentration of more lightly regulated "six-packs"—sport fishing charters carrying six or fewer passengers. Efforts to increase Prevention Department staffing across Southeast Alaska to keep pace with the demands of a steadily expanding maritime tourism industry are underway. As the former economic mainstays of fishing and logging dwindle in Southeast Alaska, the Southeast Conference, a regional economic development organization, has assessed that tourism is the fastest-growing segment of the regional economy, now directly accounting for nearly one of every five jobs. Plans for new cruise docks underscore strong projections for continued cruise industry expansion.

Conclusion

Coast Guard Sector Southeast Alaska's authority over foreign-flagged cruise ships extends 12 nautical miles offshore into U.S. territorial seas in the Gulf of Alaska. Ships that leave the shelter of the Inside Passage and turn northwards up the outer coast pass by Yakutat Bay and Icy Bay, more than 435 nautical miles from where the ships entered the Sector Southeast Alaskan Captain of the Port Zone at Dixon Entrance. The size and remoteness of Southeast Alaska is difficult to fathom. It's a mostly roadless archipelago with more than 1,100 mountainous islands scattered over an area roughly the size of Florida and is home to little more than 72,000 inhabitants dispersed in widely-spaced communities. Dramatic natural splendor on a massive scale is precisely what makes prevention work so critical in this region. In the case of a significant incident involving a cruise ship, Sector Southeast Alaska's Response Department and Command Center stand ready to coordinate with a network of federal, tribal, state, and local partners to exert maximum effort to mitigate harm to life, property, and the environment. But given the region's punishing distances, rugged terrain, sparse transportation infrastructure, and limited emergency resources, Ben Franklin's adage "an ounce of prevention is worth a pound of cure" has special salience. The Prevention Department team strives to maintain reliable navigation aids, secure port facilities, and seaworthy passenger vessels, improving the odds that travelers embarking on a once-in-a-lifetime voyage through one of the world's most uniquely beautiful places will experience nothing but smooth sailing.

About the author:

CDR Brierley Ostrander has served for 21 years in the Coast Guard as a prevention officer, with half of her time spent living and working in Alaska. Other assignments were in Maine, the Netherlands, and Japan. She is a graduate of Bryn Mawr College in Pennsylvania and went on to earn master's degrees in film production from Florida State University and international relations from the University of Leicester.

Marine Inspections in Alaska

by CWO2 Thomas C. Thelen
Advanced Journeyman Marine Inspector
Sector Western Alaska & U.S. Arctic
U.S. Coast Guard

If you have never been to Alaska, it is certainly worth the journey to experience the Alaska Native culture, abundant wildlife, breathtaking scenery, recreational fishing, and sport hunting. Covering about 663,000 square miles, Alaska is roughly one-fifth the size of the continental United States. While approximately 350,000 people live in the larger cities of Anchorage, Fairbanks, and Juneau combined, the remaining 400,000-plus residents live and work in remote parts of the state. Many come for employment in commercial fishing, oil and gas exploration and production, the tourism industry, rare mineral mining, and research. Others have lived in Alaska their entire lives, some families have been here for generations. Regardless of how people arrive, many who come have a hard time leaving.

Alaskans' livelihoods depend on essential cargo transportation to both populous cities and smaller, less accessible communities. While air cargo can provide rapid shipment of essentials, larger shipments and bulk commodities must move through the maritime transportation system using either cargo ships or tug-and-barge combinations carrying containerized or bulk liquid petroleum products. Commercial fishing also depends on catchers, processors, and tender vessels. Bulk cargoes like zinc, lead concentrate, and other rare minerals are exported via dry-bulk carriers or gold dredging vessels. Tankers regularly deliver refined petroleum products to Cook Inlet facilities and lightering barges in Western Alaska and the North Slope. In addition to cargo, tourists have no shortage of sightseeing opportunities aboard smaller passenger vessels, expedition cruise ships, and ferries. All these activities rely on critical vessel traffic in Alaska's pristine waters.

Crewmembers from the *Seven Seas Mariner* cruise ship and the Coast Guard discuss fire drills during a mandatory examination on May 26, 2025, while the cruise ship was moored in Whittier, Alaska. Coast Guard photo by LT Alex Duarte

Maritime Economic Activities

Sector Western Alaska and U.S. Arctic's Officer in Charge of Marine Inspection (OCMI) is responsible for enabling domestic and foreign vessels, both inspected and uninspected, to safely perform commercial maritime activities. To achieve this, the OCMI depends on the subject matter expertise of officers, chief warrant officers, civilian domestic vessel inspectors, enlisted port state control (PSC) officers, and fishing vessel examiners. These professionals form the inspections division workforce at the sector. While the sector is based in Anchorage, most inspections require routine travel to remote areas.

Day trips by vehicle to Whittier, Talkeetna, and Seward are routine but require up to three hours of travel each way. Other common day trips by air to King Salmon, Naknek, Bethel, Nome, Kotzebue, and Prudhoe Bay range from 500 to 1,250 round-trip miles and up to five hours of flight time. Overnight and multiday trips to these same locations are equally common, depending on the nature and extent of the inspection workload. Inspectors must be qualified and well-rounded, as they may be expected to conduct small passenger vessel, tugboat, barge, cargo vessel, and cruise ship inspections within the same trip. With inspectors constantly on the move, communication within the division is critical to accomplishing the OCMI's objectives.

Domestic Vessel Inspections

Sector Western Alaska and U.S. Arctic conducts certificate of inspection (COI) activities, including the COI inspection and any necessary regular inspections such as annuals, periodic, and drydock/internal structural examinations. The largest fleet consists of small passenger vessels, the backbone of Alaska's sightseeing tourism. The next largest categories include towing vessels and their associated cargo and oil-tank barges, many of which are single-hulled. The shop also performs routine inspections of oceanographic research vessels, roll-on-roll off, or ro-ro, ferries, liquified natural gas (LNG)-fueled ro-ro cargo vessels, offshore supply vessels, and gold dredging vessels.

With a team of 10 domestic traveling inspectors, the branch is responsible for routine inspection activities on approximately 350 vessels dispersed throughout Western Alaska. These trips often span multiple days, reducing inspector availability, particularly during the spring and summer months. During this high-traffic season, trips may be scheduled back-to-back, leaving few idle moments. In calendar year 2024, marine inspectors conducted 190 temporary duty trips totaling 246 days, completing 551 inspection activities. Of these, 44 were same-day air trips.

Polar Class 2 icebreakers are designed for year-round operation in moderate multi-year ice conditions with ice up to 3 meters thick.

Foreign Vessel Examinations

PSC examination activities include routine examinations on foreign bulk carriers calling at Red Dog Mine port site, as well as statutorily required certificate of compliance exams for foreign oil and chemical tankers and cruise ships visiting Alaska. Ecotourism has been trending upward over the last decade, especially for vessels traversing the Northwest Passage—the same route navigated by Norwegian explorer Roald Amundsen and his crew aboard the *GJØA* in 1903. One of those vessels, the P/V *Le Commandant Charcot*, is the first hybrid-electric cruise ship powered by LNG and built as a Polar Class 2 icebreaker. Most of these foreign vessels are subject to the International Maritime Organization's (IMO) Polar Code, as much of the sector's OCMI zone falls within IMO-defined polar waters. In July 2018, the sector became the first Coast Guard unit to conduct a Polar Code examination.

The PSC branch, consisting of six traveling examiners, regularly travels to Seward, Nome, and Kivalina for examinations. At Red Dog Mine, examiners often spend three to four days conducting bulk carrier examinations. At minimum, two personnel are required for each examination, limiting summer personnel availability. Per policy, at least three domestic vessel inspectors are brought in for large cruise ships, further reducing availability for domestic inspections. In calendar year 2024, the division completed examinations of 11 bulk/dry-bulk vessels, 17 cruise ships, five tank vessels, one mobile offshore drilling unit, and one foreign-flagged fishing vessel. While foreign fishing vessels are uncommon, the unit is no stranger to examining these vessels.

Commercial Fishing Vessel Safety Examinations

According to Alaska Seafood Marketing Institute, Alaska's commercial fishing industry represents a significant portion of the state's economy and contributes approximately $15.8 billion to the U.S. economy. Vessels participating in these activities are subject to regular dockside safety checks, known as uninspected fishing vessel examinations. In 2024, the sector conducted 475 dockside exams, many in remote Alaskan communities and Native Alaskan villages. Fewer than 10 active-duty commercial fishing vessel safety examiners—serving in a voluntary, collateral capacity—performed all these examinations.

The sector also plays a key role in the Alternate Compliance and Safety Agreement (ACSA) program, developed in 2006 for fish processing vessels that could not meet classification society and load line requirements. Though uninspected, these vessels face higher regulatory standards due to their operations, crew size, and onboard infrastructure. Domestic vessel inspectors—experienced in enforcing similar regulations—primarily conduct ACSA-related examinations. However, ACSA vessels are not the only ones subject to higher standards.

A recent development in the industry is the use of larger, inspected fish tender vessels. Traditionally, tendering was done by smaller uninspected vessels under 500 gross register tons. Now, some larger inspected vessels—specifically barges—have been retrofitted with critical machinery, refrigeration equipment and onboard accommodations, increasing their capacity for processing and transporting fish from areas like Bristol Bay. One such vessel, the fish tender *Hannah*, successfully completed its first season in 2024. Construction and

regulatory oversight, conducted in cooperation with Sector Puget Sound in Washington state and the local sector, ensured the vessel maintained high standards while housing nearly 100 personnel. This prototype is now being modeled by other companies planning on operating in Bristol Bay.

The Inspections Division's Operational Tempo

Due to Alaska's seasonal nature, inspection and examination activity surges beginning in March, peaking in May, and tapering off through September and October. Off-season activity shifts toward long-term repair oversight, requiring regular site visits to monitor hull inserts, piping modifications and repairs for damage caused by harsh operating conditions. For instance, routine drydock repairs for a single-hull oil-tank barge may last up to two months, especially if the vessel regularly grounds during bulk oil transfers.

Logistical challenges such as supply chain delays and limited access can further extend repair timelines. Throughout these projects, inspectors must maintain constant communication with owners and operators to ensure productive visits and make the best use of funding. Unlike units in the contiguous United States, Sector Western Alaska and U.S. Arctic regularly requires rapid funding approval—especially for unplanned activities like marine casualties. Requests for travel may be delayed due to depleted accounts, but the sector's Logistics Department and Emergency Management and Arctic Division work together to reallocate funds as needed. These collective efforts ensure all missions are accomplished without deferral—a true testament to Semper Paratus.

Maritime Safety and Prevention Activities

While the mission may not receive the same attention as other statutory Coast Guard duties, the Inspections Division plays a critical role in enabling safe maritime commerce. According to Dave Schaeffer, the sector's dedicated civilian commercial fishing vessel examiner, "The combined outreach and preventive efforts spearheaded by the sector's prevention personnel have a significant positive impact on the reduction of loss of lives and vessels by ensuring commercial fishermen have the necessary lifesaving equipment and workplace conditions to survive the harshest maritime conditions known to humankind."

LCDR Kaitlyn Moore, the senior investigating officer at the sector, added that cooperation is key to keeping mariners safe. "The inspection and investigation divisions work closely together to promote the overall safety of mariners after casualty analysis is conducted, potentially identifying regulatory gaps, violations, and safety recommendations to prevent future casualties."

Coast Guard examiners approach the *Norwegian Jade*, right, on their way to the *Seven Seas Mariner* cruise ship for a mandatory foreign passenger vessel examination May 26, 2025, in Whittier, Alaska. Coast Guard photo by LT Alex Duarte

Conclusion

The vast Alaskan waters are inherently unpredictable and often unforgiving. Traveling throughout the state for inspections may include unplanned overnights due to weather, extending trips up to five days is not unheard of in this environment. The Inspections Division works to ensure that vessels operating in these waters are built, maintained, and equipped to withstand the region's harsh conditions.

About the author:

CWO2 Thomas Thelen is an advanced journeyman marine inspector at Sector Western Alaska and U.S. Arctic with 19 years in service, 17 of those in vessel inspections. He was commissioned in 2023 after completing the Enlisted Marine Inspector Training Program at Sector Puget Sound. When not actively working, he is with his wife and five sons, including new twins. His hobbies include biblical studies, sourdough bread, guitar, and cycling.

Delivering the Coast Guard Mission to Remote Alaska

by LT Lawrence C. Schalles
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Boasting more than 33,000 miles of shoreline, the Alaskan landscape is expansive and incredibly unique. The Coast Guard operates throughout Alaska, focusing primarily on the protection of mariners and waterways.

As the largest Coast Guard sector in terms of area, Sector Western Alaska and U.S. Arctic spans 1.2 million square miles and covers some of the most remote, rugged landscapes in the United States. From the icy waters off the Aleutian Islands to the deep fjords of the Kenai Peninsula, the Coast Guard's mission in this region requires a specialized and adaptive approach. At the heart of this effort are Marine Safety Unit (MSU) Kodiak, MSU Dutch Harbor, Marine Safety Detachment (MSD) Homer in Sector Western Alaska and U.S. Arctic, and MSD Ketchikan and MSD Sitka, in Sector Southeast Alaska. Despite the challenges of extreme conditions, their small, dedicated teams of seven to 10 active-duty members play a vital role ensuring the safety of mariners, protecting the environment, and supporting the economic stability of one of the busiest fishing regions in the world.

A Vast Mission in an Expansive Region

The tasks facing the Coast Guard personnel in, Kodiak, Dutch Harbor, Homer, Ketchikan, and Sitka are as diverse as the region. These remote units are responsible for commercial vessel inspections, marine casualty investigations, pollution response, and bulk fuel facility regulatory compliance exams.

MSU Kodiak oversees the nation's second largest island and facilitates coordination with partnering agencies for one of only four orbital vertical rocket launch sites in the United States, the Alaska Pacific Spaceport

During the winter months in Alaska, remote areas may only be accessible by ferry or air and, like Dutch Harbor, can be cut off from the mainland for days at a time. Coast Guard photo by LT Lawrence Schalles

Complex. This site plays a key role in providing Alaska with a unique economic benefit and resiliency for U.S. space exploration.

Dutch Harbor is known for the Discovery Channel show "Deadliest Catch." It is also where Coast Guard members inspect the numerous fishing vessels that ply the frigid waters of the Bering Sea, ensuring they meet safety regulations and are prepared for the harsh conditions.

MSD Homer is responsible for regulatory oversight of multiple new construction and repair shipyards and conducts inspections and certifications on an extensive fleet of commercial and recreational vessels. Homer Harbor can simultaneously accommodate more than 850 vessels year-round.

MSD Ketchikan provides vital inspection services, maintaining compliance oversight of the Alaska Marine Highway System vessel fleet. Its team also manages vessel construction and repair efforts at Alaska's largest shipyard and oversees the state's busiest cruise ship port.

MSD Sitka plays an equally critical role in the Southeast Alaska region, overseeing the central coastal area of the SE Alaska Archipelago, including Baranof, Kuiu, and Chichagof Island's southern half, along with all adjoining waterways, extending seaward 200 nautical miles. Sitka is the sixth largest port by value of seafood harvest in the United States and provides ongoing vessel inspections. It also manages a Marine Transportation System consisting of three passenger/cruise ship terminals, two bulk-liquid facilities, and several other vital marine operations facilities.

Rough seas, freezing temperatures, and ice accumulation on vessels are daily challenges of working in some of Alaska's most remote locations. Severe ice accumulation can cause dangerous stability issues. Coast Guard photo by CWO4 Shawn Erwin

The Challenges of Remote Duty

For the personnel assigned to these units, the challenges of living and working in remote Alaska are as demanding as the operational tasks themselves. In Kodiak, Dutch Harbor, Homer, Ketchikan, and Sitka, living off the beaten path comes with limited access to medical facilities, goods, and social opportunities.

Many everyday necessities that are usually taken for granted are often lacking or nonexistent in this region. Getting goods in these remote areas can carry a steep price tag and something as basic as medical care can require effort and planning above and beyond. Instead, Coast Guard members stationed in these remote units are required to use available civilian medical treatment options which can pose significant challenges for military personnel, especially those needing specialty care. Taking a flight or ferry ride to seek medical care is a common occurrence.

Additionally, traditional retail and grocery stores are often not readily accessible and many units in Alaska are not connected to the road system. That means goods must be brought in via air or vessel increasing shipping costs and delivery times.

Isolation and Limited Access

The geographic isolation of these units means most Coast Guard personnel live far from the conveniences and services available in more populated parts of the country.

In Kodiak and Ketchikan, residents may experience prolonged periods of isolation during the winter months when weather conditions make ferry and air travel unreliable. Similarly, Dutch Harbor is accessible only by ferry or air and is often cut off from the mainland for days at a time when severe storms hit the Aleutian Islands. In Homer, excessive snow is common in the winter, which can make travel extremely difficult on all but the main roads.

Sitka, a remote island in Southeast Alaska, has just 14 miles of paved roads which don't connect to the mainland road system. This means it's only accessible via water or air, adding to the challenges faced by those stationed there.

Weather and Environmental Extremes

Notorious for its unpredictable and often extreme weather, residents of Western Alaska face heavy snowfall, frequent rainstorms, and bitterly cold temperatures for much of the year. The winds that whip through these coastal areas are fierce, with gusts that sometimes exceed 100 miles an hour. In Dutch Harbor, one such storm

threatened an 800-foot freighter that was at risk of grounding on its shores due to 30-foot swells and 80 mph winds.

In Homer, it is common to see vessels with severe ice accumulation which can cause dangerous stability issues. For Coast Guard personnel working on the water, the conditions can be even more dangerous. Rough seas, freezing temperatures, and ice accumulation on vessels are daily challenges requiring extreme vigilance and preparation. In Sitka, the climate is marked by heavy rainfall—an annual average of 120 inches.

From witnessing unique wildlife to viewing the northern lights and engaging with the rich culture of local communities, every opportunity brings a greater appreciation for the land and its people.

Coast Guard members and their families living in some of Alaska's most remote areas share the region with native wildlife. In Kodiak, that means being "Bear Aware." It can also mean intentionally interacting with endangered species or those impacted by an oil spill or other incident. Photo courtesy of Marcella Suydam

Limited Amenities and Services

In a region known for its rugged beauty, amenities can be scarce and Coast Guard units in Alaska do not have a military medical treatment facility nearby. In Dutch Harbor, the closest hospital is several hours away by plane, and inclement weather may cause the delay or cancellation of flights out of the area. Groceries and supplies often must be shipped in, and transportation costs can cause steep prices.

While the remote lifestyle fosters a close-knit community, it also means Coast Guard members and their families must adapt to a different lifestyle requiring a combination of self-reliance, patience, and a strong sense of camaraderie.

Dark Winters and Long Days

During the winter months, these areas experience long periods of darkness, with some parts of Western Alaska seeing little or no daylight for weeks at a time. This can take a toll on mental health and overall well-being, making it more important for Coast Guard members to maintain strong personal connections and work-life balance. Conversely, summer in the region offers a stark contrast to the winter months with the sun setting for only a few hours a day in some locations.

Wildlife and Natural Hazards

Living in Alaska also means sharing it with the region's wildlife and other natural hazards. From eagles, bears, and moose to the abundance of marine mammals in the surrounding waters, Coast Guard personnel must be constantly aware of their environment. In Kodiak, this means being what the locals refer to as being "Bear Aware." In Dutch Harbor, eagles are known to attack pedestrians that stray too close to their hillside nests. On the job, members must be prepared to respond to wildlife-related incidents, such as oil spills that threaten endangered species, or to ensure that maritime activities are conducted safely to avoid damaging Alaska's fragile ecosystem. Off-duty, personnel and their families must exercise caution around wildlife that may encroach on their homes or workplaces.

Supporting Local Community

Throughout Alaska, community is one of the most important aspects of life. Working together to not only survive but thrive is crucial to Alaskan residents' success. Coast Guard members stationed in remote Alaska have the privilege of working closely with the unique communities, including native villages and Russian communities that remained after the United States purchased the land in 1867. Although there may be vast cultural differences among the communities, working together and bolstering community ties is extremely important to Alaskans. Despite potential communication barriers, the opportunity to serve and engage with these historic communities is undoubtedly one of the most rewarding aspects of life in remote Alaska.

Small Teams, Big Impact

MSU Kodiak, MSU Dutch Harbor, MSD Ketchikan, MSD Homer, and MSD Sitka serve as the Coast Guard's gateway to the Arctic region, strategically, positioned to support the nation's expanding presence in these waters. As vessel traffic and resource exploration increases, these units play a vital role in ensuring maritime safety, security, and environmental protection. Their presence strengthens the Coast Guard's ability to enforce regulations, conduct search and rescue operations, and respond to emerging challenges in the Arctic. By maintaining a constant, robust operational footprint in these key locations, the Coast Guard enhances national maritime domain awareness and supports economic prosperity in some of the most isolated, challenging environments on

Remote areas of Alaska, like Kwigillingok, are notorious for extreme weather including heavy snowfall, frequent rainstorms, and bitterly cold temperatures for much of the year. The winds that whip through these coastal areas are fierce, with gusts that sometimes exceed 100 miles an hour. Coast Guard Petty Officer 1st Class John Fanelli

Earth, exemplifying commitment, professionalism, and perseverance.

These small, remote Coast Guard units play a crucial role in safeguarding the region's maritime safety. Their far-reaching impact can be a lifeline for those who live and work on Alaska's waters, whether they're preventing a maritime disaster, responding to a vessel in distress, or ensuring that environmental regulations are followed.

Conclusion

Life in Alaska is not for the faint of heart and those who choose to serve there must be adaptable and resilient. Personnel operating from Alaska's MSUs and MSDs face harsh weather, geographic isolation, and the demands of executing a complex marine safety mission in one of the world's most remote regions.

Despite these challenges, Coast Guard personnel stationed in Kodiak, Dutch Harbor, Homer, Ketchikan, and Sitka demonstrate remarkable resilience and dedication. Whether inspecting a fishing vessel during a fierce storm, investigating a marine casualty, or responding to a pollution incident in the remote wilderness, they are always ready to serve.

From navigating the intricacies of daily life in a small Alaskan community to long hours on the water, these personnel draw on their training, resourcefulness, and team spirit to meet the challenges of the job head-on. Their work not only ensures the safety and security of mariners but also contributes to the protection of the region's delicate environment, the livelihoods of those who depend on it, and the preservation of the Alaskan maritime way of life. It serves as a powerful example of the Coast Guard's dedication to excellence.

About the authors:

LT Lawrence Schalles, a native of Tampa, Florida, serves as commanding officer of Marine Safety Unit Dutch Harbor, Alaska. In support of the prevention mission, he leads a team of six active-duty members in conducting inspections, exams, and marine casualty investigations in the largest U.S. commercial fishing vessel port by volume.

LT Casey Reynolds, commanding officer of Marine Safety Unit (MSU) Kodiak, Alaska, safeguards Kodiak Island's critical economic and transportation systems by ensuring the safety and security of Kodiak Island's $1.2 billion fishing and $11 billion shipping industries. His experience also includes service aboard CGC Escanaba, *Sector Delaware Bay, and MSU Port Arthur, highlighting a deep understanding of diverse maritime operations.*

LT Juston Lee, from Bedford, Indiana, is the supervisor of Marine Safety Detachment Homer, Alaska. He leads a seven-person detachment specializing in vessel and facility inspections and casualty investigations. His service spans 18 years and includes tours aboard CGC Hollyhock, *at Air Stations Detroit, Miami, and Kodiak, as well as Sectors Mobile and New Orleans.*

LT Devin Greenwell is the supervisor of Marine Safety Detachment Ketchikan, Alaska. He has 15 years of active-duty service with the Coast Guard, including eight years in marine inspections and marine casualty investigations.

CWO2 William Glenzer, originally from Seattle, currently serves as the supervisor at Marine Safety Detachment Sitka, Alaska, where he oversees marine safety, security, and environmental protection as the only marine inspector and marine investigator in the detachment's area of responsibility which encompasses more than 4,815 square miles.

Delivering Survival

Moving fuel and freight in the Last Frontier

by Peter Schrappen
Pacific Region Vice President
American Waterways Operators

To ply the waters of Alaska is to embrace all its last frontier-ness. The vastness, the unexplored land, the 33,000 miles of jagged coast—more than the rest of the United States combined—create a dynamic unlike anywhere in the Lower 48. Its vast land, expansive seas, and proximity to foreign adversaries, combined with recent history, create a unique and unparalleled environment. It's a place where local knowledge and operational agility are crucial, and those navigating the waterways must share information and coordinate to survive.

The relationship between Sector Western Alaska and U.S. Arctic, previously known as Sector Anchorage, and the maritime industry is best understood through the lens of the 1989 Exxon Valdez oil spill, the subsequent cleanup, and the Oil Pollution Act of 1990 (OPA 90). The passage of this landmark law set in motion preventive measures so a vessel spill of that magnitude could never occur again. Reducing environmental risk is a key objective of Coast Guard regulations implementing OPA 90, but flexibility is needed because of the unique nature of marine transportation in Alaska.

"The resources up here are nowhere near what is [available] in the Lower 48]," said Steve White, a retired Coast Guard captain and the executive director of Marine Exchange of Alaska (MXAK), a nonprofit organization dedicated to preventing maritime disasters. He points out the need for flexibility and options to meet prevention and response requirements laid out by regulators more than 4,000 miles away in Washington, D.C.

White said there is, by necessity, a path forward if the letter of the regulations cannot be met, adding that, there aren't enough resources to meet response plan requirements for a vessel in Alaska.

"So, there [are] alternative planning criteria where vessels can take additional measures to reduce risk because the response network is so spread out and only has limited capability," he added. "It's just not feasible to have the same resources across Alaska as they do down south."

The tug *Jackie M* pushes a small fuel barge. These vessels are small, shallow-draft assets serving the upper villages of the Nushagak River in Alaska. The twists and turns of the upper river require small equipment. Photo courtesy of Vitus Marine

The articulated tug barge *Aurora/Qamun* delivers much-needed diesel fuel to Dutch Harbor, Alaska. The state-of-the-art vessel is specifically designed for maximum maneuverability in Alaskan waters. Photo courtesy of Crowley Fuels Alaska

Solving Problems Together

The region's combination of waterways users and the nature of the rules in place create a climate that lends itself to an organization like MXAK to help ensure safe interactions between vessels and a dialogue with regulators and law enforcement.

White noted that the problem is complex, as food insecurity, declining fish stocks, and changing climates threaten Arctic communities' way of life.

"In addition, the increased shipping through the Bering Straits is a strategic reality and all indications are that the trend will only increase.," he said. "We need to work together to avoid another Exxon Valdez … in this very remote region with very little resources. How do we manage this increased traffic up there?"

Located in Juneau and operating since 2001, MXAK provides real-time information to mariners to ensure vessel traffic moves safely and efficiently. The organization manages about 160 marine safety sites along with a 24/7 operations center that communicates with thousands of cargo vessels, fishing vessels, recreational boats, cruise ships, barges, and towing vessels.

Alaska's maritime transportation sector uses data gathered from resources like MXAK to safely deliver the fuel and supplies that many Alaskans count on for survival. The limited roads within the state, and the efficiency of moving fuel by water, make maritime companies like Vitus Marine, Crowley Corporation, Centerline Logistics, and Alaska Marine Lines crucial to the viability of numerous remote Alaskan communities.

"(With) Western Alaska, there's a lot of areas that are just on the cusp of being on the road system and there's those areas that are off the road system. The infrastructure is limited," said Captain David Ridge, general manager and vice president for Vitus Marine. "We go out and we find the fuel that our customers need, we negotiate contracts, and then we deliver that fuel."

Vitus Marine is not alone when it comes to serving Alaska. "Centerline Logistics is a vital part of Alaska's infrastructure, supporting critical industries throughout the state, Matt Godden, the company's CEO, said. Centerline Logistics delivers essential goods–everything from seafood supplies to the remote Trident Plant in Akutan to the petroleum products that fuel Alaskan communities. With safety and collaboration as priorities, the company leads efforts to enhance maritime safety through its role as the primary seat on the Aleutian Island Waterway Safety Committee and membership in the Storm Weather Avoidance Group. These commitments ensure reliable, efficient movement of goods that support Alaska's economic vitality and well-being.

Centerline Logistics' Captain Brad Kroon underscores

the importance of transparent communication and regular information exchange between the region's maritime stakeholders.

"One of the things [we participate in] is a pre-winter meeting every year, and at the end of that, we bring in the Coast Guard and some of the other regulatory folks and go over our expectations for the winter, what we experienced last winter, ice conditions, ice guidelines," he said.

Kroon and Ridge, two longtime Alaska residents, both cite the importance of Coast Guard teams working with the maritime industry and its customers as paramount in their respective operations.

"The biggest challenge is getting everybody involved on the regulatory side up to speed—because there's so much Coast Guard turnover—on what the challenges are, what's available, what are we doing with our vessel response plans to address concerns for those alternative compliances," Kroon said.

Both operators are members of the American Waterways Operators (AWO), which serves as the advocate, resource, and united voice for the domestic tugboat, towboat, and barge industry nationwide. AWO plays a critical role in service to Alaska's maritime community, too.

Without AWO, the Coast Guard and other regulators would be left to engage each company individually. AWO mitigates the need for this by functioning as both the principal advocate for the industry in Alaska and as a convenor of discussions to bring stakeholders together. As the advocate, it covers a range of cross-cutting issues including alternative planning criteria, application and enforcement of Subchapter M safety regulations, and the Jones Act, a federal law that regulates maritime commerce between U.S. ports.

MXAK's White touts the benefits of an association like AWO that's able to pool members' interests into a single, unified voice that can work with the Coast Guard on shared interests.

"I think that's the value of AWO. You can help represent, bring those voices together, speak on behalf of your users as a whole," he said, touting AWO's framework that allows for collegial communication with the Coast Guard.

AWO is one of several organizing and galvanizing forces in Alaska's maritime environment. Nonprofits focused on maritime interests like the Harbor Safety Committee, Marine Exchange, and the burgeoning Propeller Club of Alaska are all examples of the type of cooperative effort that is taking place to make Alaska's operating environment tamer and less wild.

Cooperation on the Horizon

The city of Bethel illustrates how marine transportation serves as the lifeblood of western Alaska. "Bethel is the hub of this whole delta area," said Steve Isaacs, president of Bering Marine Corporation, which provides freight transportation throughout western Alaska. "It's got a big hospital and a large airport, so it's a lifeline for a lot of these villages on how to get their freight in and out."

The city of more than 6,000 residents relies on barges to keep their residents fed and construction projects moving, but the Kuskokwim River near Bethel is facing an increased need for dredging, an issue that will become more pressing as time goes on.

"Now it's shoaling in along the route and getting so skinny that we probably only have 20 feet of wiggle room passing the fuel dock. That whole [area] is about to get choked off," Isaacs said. "It could be that in the next five years we're going to have to start running smaller barges in there to be able to make it all the way up to the city of Bethel."

Engagement on the shoaling in Bethel and other emerging issues could entail bringing together the Coast Guard, U.S. Army Corps of Engineers, local government, and the private sector in the future.

The Jones Act

The combination of remote communities, extreme weather, and established cooperative frameworks that defines industry operations in western Alaska underscores the importance of the Jones Act, another vital asset for Alaskan operators and the people they serve. This federal law requires vessels transporting cargo between two U.S. ports be American-built, American-owned, and American-crewed.

"The Jones Act is very important to us out in western Alaska because we can't just have anybody go do this type of work," Isaacs said. "The rivers in this region are mostly uncharted and change yearly depending on ice conditions in the winter. Without the Jones Act, safety and service degradation would have a huge impact on these villages."

Conclusion

Navigating U.S. maritime interests in western Alaska and the Arctic demands a collaborative "family" dynamic among maritime organizations. These groups work together to address challenges and raise awareness about the critical role the region's marine transportation sector plays in keeping communities fed, homes warm, and store shelves stocked. If this is the last frontier, sign me up!

About the author

Peter Schrappen is Pacific region vice president and regional team lead with the American Waterways Operators.

Arctic Fueling

Extending time on scene in high latitudes through commercial fueling at sea

by CAPT Brian Krautler
Commanding Officer
CGC Stratton
U.S. Coast Guard

The "tyranny of distance" is a considerable challenge and planning factor throughout the Pacific. It is of particular significance in the Bering Sea and Arctic, where the challenges of distance are compounded by the exigencies of weather in an area known to meteorologists and mariners as "the birthplace of winds."

With increasing presence of foreign competitors operating throughout the Aleutian Islands, Bering Sea, and Arctic Ocean, CGC *Stratton* developed options for refueling and resupplying farther north than the Coast Guard's established logistics hubs in Kodiak and Dutch Harbor, Alaska.

The Arctic as a Competitive Space

CGC *Stratton*, a national security cutter, deployed to the high latitudes from July through November 2024, sailing under the operational control of the Coast Guard's Arctic, based out of Juneau, Alaska. While CGC *Healy* was temporarily sidelined for emergency repairs, CGC *Alex Haley* covered the Bering Search and Rescue (SAR) Guard. *Stratton* conducted Arctic operations, meeting the presence of foreign competitors, particularly in instances where those competitors crossed the Maritime Boundary Line separating U.S. and Russian exclusive economic zones.[1] These strategic competitors included Russian submarines and naval surface ships,[2] multiple People's Republic of China (PRC) research vessels,[3] a multinational group exercise featuring PRC and the Russian Navy,[4] and a first-of-its-kind joint patrol of the Bering Sea and Arctic by the Russian Border Guard and the PRC Coast Guard.[5] Anticipating the continued growth of the Arctic as a space that will require consistent U.S. Coast Guard maritime presence, *Stratton* sought opportunities to extend on-station time and capacity through refueling and resupply venues other than established bases in the Aleutians.

Logistics Challenges in Arctic Operations

Following an operational in-brief in Juneau, *Stratton* conducted logistics stops at the two primary logistics bases for Bering and Arctic-deployed cutters: U.S. Coast Guard Base Kodiak and the Aleutian Islands' commercial port facility in Dutch Harbor. While the two facilities are well established in providing all necessary logistics for Arctic deployments, they are a significant distance from the Arctic Circle. Kodiak Island is approximately 1,300 nautical miles (NM) south, equating to roughly three-and-a-half days of transit for a national security cutter (NSC) in the most economical cruising speed and propulsion plant configuration, burning more than 33,000 gallons of fuel—roughly 15% of total fuel capacity.

Dutch Harbor, the closest shoreside refueling option capable of handling an NSC alongside the pier, is approximately 800 NM south of the Arctic Circle, requiring a transit time of more than two days and burning more than 20,000 gallons of fuel, or roughly 10% of total fuel capacity. Given the relationship between cutter speed and fuel consumption, the need to maintain a safe reserve fuel level for emergent operations, and the distance required to reach the next refueling port

CGC *Stratton* sails through Beaver Inlet near Dutch Harbor, Alaska, in February 2024. *Stratton* and CGC *Bailey Barco* conducted joint cutter boat training and formation steaming while on patrol in the Bering Sea and Gulf of Alaska for fisheries enforcement, safety of life at sea, and sovereignty projection. Coast Guard photo by Petty Officer 3rd Class Ian Gray

call, fuel status is a critical planning factor. Additionally, the increased burn rates that often result from running faster than "most economical" cruise speed to get ahead of frequent unfavorable weather systems must be considered. This fuel status planning factor was the subject of careful daily integration for engineering, operations, and support departments while conducting NSC operations in the Arctic.

High-Latitude Fueling Options

Prior to deployment, *Stratton* engineers and supply staff combed through the deployment summaries of recently deployed cutters to garner information regarding remote resupply and refueling experiences. The only instance of remote refueling the crew could find was from CGC *Sherman*, a high-endurance cutter that fueled by barge in Kotzebue Sound in 2017. *Stratton* personnel could not find records of an NSC conducting similar operations. While on patrol, the engineer officer, LCDR Ben Williamsz, and support/supply officer, CWO2 Javier Pagan, set to work to determine availability, feasibility, and financial management for at-sea refueling above the Arctic Circle.

High-Latitude Fuel Providers

Stratton determined that Defense Logistics Agency (DLA) open market locations exist in Kotzebue Sound, Point Hope, and Utqiagvik, with fuel delivered by the same barge operators that refuel communities in western Alaska and the North Slope. *Stratton* was able to order fuel twice through Clipper Oil, a commercial vendor

Top: CGC *Stratton*, right, refuels at sea alongside the tug *Cavek* in Port Clarence, Alaska. Coast Guard photo by ENS Jake Thoenen

Bottom: The tug *Cavek*, right, and barge approach CGC *Stratton* to refuel at sea in Port Clarence, Alaska. Coast Guard photo by ENS Jake Thoenen

with a DLA contract in Nome.

Potential fuel locations are entirely dependent on the planned summer barge operations which occur approximately between June and September with limitations imposed outside of that window due to seasonal ice and heavy weather. As an alternative option, *Stratton* found that fueling off the coast of Utqiagvik, formerly known as Barrow, a village more than 300 miles north of the Arctic Circle, is possible but not advisable. Open market fuel pricing proved prohibitive at more than $14 per gallon and the cancellation fee was quoted as $150,000 in an area exposed to extreme weather.

Fueling Evolutions

After researching options, *Stratton* worked through Clipper Oil to arrange fuel delivery in Kotzebue Sound through the DLA open market at the same rate as fuel provided in Dutch Harbor, $4.12 per gallon at the time. The day before the scheduled fuel delivery, *Stratton* anchored in the southwest corner of Kotzebue Sound, keeping the fuel tanker within sight. The crew closely monitored local weather conditions and forecasts, planning the fueling operations for the most favorable weather day. On the fueling day, *Stratton* encountered perfect conditions, with light winds and the landmass of Kotzebue offering shelter from any seas. While the *Stratton* was anchored, the tug *Cavek* and a fuel barge made their way from the fuel tanker to the cutter, approached and tied up safely along the port side. *Stratton*'s fuel team and engineer officer observed certification records for the fuel onboard the barge, as well as live testing of fuel samples. Having observed satisfactory tests, the crew onloaded 49,000 gallons of marine diesel before sending over *Stratton* hats and coins for the *Cavek* crew, casting off lines, getting underway from anchorage, and resuming patrol.

The second evolution was conducted on the next patrol leg, in Port Clarence. While not technically an Arctic port, the port is located only 20 NM south of the Bering Strait and provides ample protection from Bering Sea storm systems. The only major change on the second evolution was the addition of *Stratton*'s 8-by-10-foot inflatable fender, produced by Aere. The fender is advertised as 10 times stronger than a standard vinyl fender and can be deflated for storage. *Stratton* found that the addition of the inflatable fender provided greater separation between the barge and the angled hull of the cutter, improving safety. During this evolution, the crew onloaded 73,000 gallons of marine diesel before resuming patrol.

High-Latitude Logistics

In addition to fueling, *Stratton* researched options to reprovision food and supplies in high latitudes and to provide emergency medical services and personnel transfers. The crew determined that Kotzebue was an ideal location for personnel transfers, with daily flights to Anchorage. Additionally, a forward operating location, seasonally staffed and maintained by Air Station Kodiak, proved invaluable for managing "last mile" logistics. *Stratton* also conducted a medevac out of Kotzebue for an ill crewmember and found that ship-to-shore transfer through the 12 NM channel was a viable course of action.

South of the Bering Strait, but far closer to the Arctic than Dutch Harbor, *Stratton* found the city of Nome to be an outstanding logistics port. Although the port is currently too small for an NSC to enter—an expansion plan has been approved—the excellent nearby anchorage offered plenty of opportunities for cutter boat transfers of personnel and provisions. In fact, *Stratton* found that flights between Nome and Anchorage were more reliable and cost efficient than flights in and out of Dutch Harbor, due in part to more challenging weather and limited air carriers in the Aleutian Island port.

Conclusion

International maritime traffic of all types will continue to increase throughout the Arctic Ocean and high-latitude waters of the United States. This traffic will require the extended presence of U.S. Coast Guard cutters to uphold maritime governance, safeguard global commerce, and provide maritime domain awareness in our most remote operating areas. With extended distances to established fueling ports in the Aleutian Islands, cutters will need to continue to seek opportunities to extend operational duration through at-sea refueling.

About the author:

CAPT Brian Krautler has served in the Coast Guard for 26 years. He is a cutterman with 14 years of sea time aboard eight cutters in the Pacific, Alaska, and Great Lakes. His experience at sea includes aids to navigation, icebreaking, law enforcement, defense readiness, and search and rescue.

Endnotes:

1. Grady, J. (2024, August 8). Recruiting Shortfall Means Coast Guard 'Can't Crew All Our Ships,' Says Vice Commandant. U.S. Naval Institute. https://news.usni.org/2024/08/08/recuriting-shortfall-means-coast-guard-cant-crew-all-our-ships-says-vice-commandant
2. CBS News Online (2024, September 17). Russia Submarines and Naval Ships Cross into Buffer Zone off Alaska, U.S. Coast Guard Says. https://www.cbsnews.com/news/russia-submarines-ships-alaska-us-coast-guard
3. Humpert, M. (2024, August 20). China Deploys Three Icebreakers to Arctic as US Presence Suffers After 'Healy' Fire. gCaptain.com. https://gcaptain.com/china-dispatches-three-icebreakers-to-arctic-us-suffers-healy-fire/
4. The Associated Press (2024, September 10). Russia Begins Massive Naval Drills Together With China. https://apnews.com/article/russia-naval-air-drills-china-f941584643d6503df2b42dae7abe7f15
5. Reuters (2024, October 1). China's Coast Guard Enters Arctic for the First Time for Patrol with Russia. https://www.reuters.com/world/chinas-coast-guard-enters-arctic-first-time-patrol-with-russia-2024-10-02

The Maritime Economy of Southeast Alaska

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Southeast Alaska is dominated by its ocean, with a region composed of a narrow strip of mainland and a chain of over 1,100 islands, forming the Alexander Archipelago. The region stretches about 500 miles from the Dixon Entrance waters at the southern end of the archipelago to the borough of Yakutat at the northern end, yet its saltwater shoreline extends approximately 18,500 miles. Nearly every community in the region sits along the ocean.

Southeast Alaska's communities heavily rely on waterways for transporting goods and people. Most of these communities are only accessible by boat or seaplane, and of the 35 communities in the region, only three—Hyder, Haines, and Skagway—are reachable by road from the Lower 48 states. The region is known for its seafaring population, including fishermen, individuals with work vessels, and those who seek to enjoy the natural beauty of the Pacific. Southeast Alaskans own more than 19,000 boats and vessels, which translates to a ratio of one vessel for every four residents.

The Coast Guard's presence in Southeast Alaska is significant, with 825 active-duty members and civilians,

CGC *Anthony Petit*, a Keeper-class coastal buoy tender is docked in its homeport of Ketchikan, Alaska. Laura Ragsdale | iStock/Getty images

Petty Officer 2nd Class Dylan Young, left, and Chief William Jordan, members of CGC *John Witherspoon* (WPC 1158), conduct cutter boat training in the vicinity of Juneau, Alaska, on January 23, 2025. The *John Witherspoon* is one of three cutters slated to commission in Kodiak, Alaska, to support search and rescue missions, living marine resources, and maritime law enforcement. Coast Guard photo by Petty Officer 3rd Class Cameron Snell

as well as 61 auxiliarists serving in the region. These individuals contribute to the economy, earning nearly $73 million in wages annually.[1] The region's unique geographical and economic challenges often intersect with the objectives of Sector Southeast Alaska, which is aligned with trends and indicators from the private sector.

While industry trends shed light on why the workforce is booming, it is the quirks of the local economy that really shape the distinctive culture and vibe of Southeast Alaska. It's not just about numbers—it's about how the region's unique challenges and opportunities come together to create something truly one-of-a-kind. One of the most pressing issues in the region is housing. Despite the high cost of materials, the housing shortage can be traced to the fact that only 0.05% of the land in Southeast Alaska is privately owned.[2] This key piece of data helps the Coast Guard and other organizations understand regional trends, allowing them to anticipate future challenges. Through such insights, the larger context of the region's economy and plan for its ongoing development comes into focus.

Southeast Alaska's Blue Economy

Southeast Alaska has a long-standing history with maritime jobs, as the maritime sector stands as both the region's largest industry and its oldest. The region has been a maritime economy for more than 11,000 years with a history rooted in seafaring, canoe building, and tidal wealth of the Tlingit, Haida, and Tsimshian—the Alaska Native tribes that inhabited the region for millennia.

The Tlingit—often called the "Tides People," thrived in the coastal lands of Southeast Alaska, where the ocean provided abundant fish and sea mammals, as well as a transportation corridor. Highly-skilled navigators, the Tlingit developed ocean trade routes using large ocean-going canoes for trading, visiting neighboring villages, and waging war. They built onshore aids to help navigate the many waterways and inlets of Southeast Alaska.

Nearly every element of Southeast Alaska's economy is fueled by ocean commerce. The region depends on barges to import most commodities, including food and fuel. The seafood industry depends on the wealth of the sea and the flotilla of 2,600 commercial fishing vessels homeported in the region. Nearly 2 million visitors come to Southeast Alaska, primarily on around 500 cruise ship voyages in the summer. Freight ships move logs and ore laden with precious metals to market. Alaska Marine Highway ferries provide transportation between

communities. Government workers regulate the fishing industry, teach fisheries courses, manage coastal areas, operate docks and harbors, research ocean species and habitat, and guard its coasts.

Twenty-two percent of all Southeast Alaska wages are directly earned through ocean-related employment.[3] In Southeast Alaska, there are more than 8,000 blue jobs—as maritime jobs are sometimes called—with nearly $600 million in associated wages. Combined, the businesses and government agencies directly connected to the ocean constitute the largest economic sector in Southeast Alaska. If the businesses that benefit from cruise ship tourism were included in that figure, the maritime economy is responsible for one-third of all jobs and wages.[4]

Tourism

Visitors have been coming to Southeast Alaska by ship since John Muir wrote about the region in the 1870s. In 1890, steamships brought 5,000 travelers. In 2025, cruise ships are expected to bring 1.7 million visitors to the region, which offers a unique combination of natural beauty, wildlife, culture, and adventure. Some of the region's most famous natural wonders can only be viewed from the water, like awe-inspiring Hubbard Glacier near Yakutat, the massive icefields of Glacier Bay National Park near Gustavus, the otherworldly beauty of the Misty Fjords National Monument near Ketchikan, and the Tracy Arm Fjord outside Juneau.

The volume of tourists attracted to the region has given rise to a rich variety of local visitor businesses that benefit from the sea, from sport fishing and whale watching to guided kayak tours and tastings at oyster farms. Those working in the visitor industry earned $347 million in 2023, comprising 13 percent of all regional employment income, making tourism the top economic sector in the region.[5]

The Coast Guard is a dynamic partner in the regulation of the cruise ship industry, helping to ensure safe and secure voyages for passengers and crew among a myriad of other objectives. The Coast Guard plays a serious role in ensuring the safety and security of cruise ships by conducting regular inspections of safety, security, and engineering systems, as well as enforcing maritime regulations and international treaties. Coast Guard units also provide search and rescue capabilities in case of emergencies. Sector Southeast Alaska saw a 61 percent increase in medical evacuation requests from 2017 to 2024.[6] Most of these cases come from cruise ships.

Additionally, the Coast Guard monitors cruise ship operations to prevent illegal activities like smuggling or unauthorized entry into U.S. waters. Sector Southeast Alaska's Waterways Management Division was recently authorized to hire a civilian to join our waterways management division, a direct result of the increased

A cruise ship navigates Alaskan fjords. Dimarik | iStock/Getty images

workload associated with new construction projects taking place on water. The Coast Guard works with the U.S. Army Corps of Engineers to review permit applications as a navigation subject matter expert. In 2024, the Waterways Management Division reviewed upwards of 100 waterfront permits for navigational impacts, and local Coast Guard marine inspectors have seen vessel inspections jump from under 400 in 2017 to well over 800 in 2023. The increase can be seen in the growing number of tour vessels in Southeast Alaska that support cruise ship operations in fields like whale watching, charter fishing, and sightseeing.

Nearly 2.2 million passengers arrived in Southeast Alaska by air, ferry, and cruise ship in 2023.[7] Cruise passenger numbers grew by nearly a half million passengers since 2022, a 42% increase, as the COVID-19 pandemic's impact on tourism eased. The 2023 season's 1.67 million cruise ship passengers marked a new regional record, breaking the previous record of 1.33 million passengers set in 2019. In 2023, tourism sector jobs increased by 26% over 2022, as nearly 1,700 new, year-round equivalent jobs were added, and wages grew by $105.5 million, a 44% increase.[8]

According to early findings, 2024 was a very good year for tourism businesses, and by extension the regional economy.[9] Tourism businesses reported record revenues and are becoming competitive with other sectors for workers. In spring 2024, business leaders from the tourism sector reported a strong economic climate, with 81% calling the business climate good or very good. Nearly half—43%—expected business operations to be even stronger heading into 2025.[10]

After years of cruise passenger volatility due to the pandemic—cruise numbers dipped to just 48 passengers in 2020 and just over 100,000 in 2021[11]—a stable supply of passengers is expected in 2025. This will provide tourism businesses a predictable supply of customers. The City and Borough of Juneau is working with the cruise industry on a strategy to limit the number of passengers, ensuring a controlled growth pattern. These strategies, which will begin in 2026, include a five-ship daily limit, daily caps on passengers of 16,000 on weekdays and 12,000 on weekends, and a shortened cruise ship season. These three changes are intended to cap significant overall cruise passenger growth and include an agreement to meet annually to balance the schedule.

Despite reaching a record high in tourism jobs, regional businesses continue to struggle with attracting enough workers to meet visitor demand, with business leaders primarily attributing the challenge to housing shortages. In a recent analysis, tourism leaders identified the region's greatest weakness—and biggest threat to the industry—as the lack of housing, while the greatest opportunity lies in workforce housing development. Meanwhile, the region's strongest tourism asset remains its natural beauty.

Seafood Industry

Fishing and fish processing have deep historical roots in the region. A stone fish weir, or tidal fish trap, discovered on Prince of Wales Island dates back at least 11,000 years. In the late 1800s, commercial fishing and canneries were the largest economic driver in Southeast Alaska. Today, there are more than 3,600 commercial fishing seafood processing jobs that typically account for $300 million in earnings for the regional seafood industry. On average, regional fishermen harvest 250 million pounds of seafood annually. However, the seafood sector maintains a base level of volatility.

Pink salmon mature and complete their life cycle within two years, resulting in distinct odd-year and even-year populations. In Southeast Alaska, this creates larger harvests in odd years and smaller harvests in even years.

The regional seafood industry is currently experiencing economic challenges marked by historically low salmon prices, rising operational costs, consolidation of processing facilities, and unfavorable global dynamics. While seafood was the top private sector wage provider in the region in 2021 and 2022, the value of seafood dropped precipitously in 2023, though not for lack of fish.

In 2023, regional fishermen caught 325 million pounds of seafood, the largest catch since 2013. Yet, it was one of the lowest catch values on record with a value of $261 million. Fishermen caught 74 million more pounds of seafood in 2023 than the previous year. This includes 78 million more pounds of pink salmon

and 27 million more pounds of dog salmon. But the per pound value of species were down considerably. The overall gross value of the catch decreased 20 percent compared to 2022, a $66 million decline. Total workforce earnings across the seafood sector dropped by $77 million.

The COVID-19 pandemic and Russia's near-record salmon harvest in 2023 contributed to an overabundant global salmon supply, leading to depressed prices across all species. Overall job numbers were flat, so workers earned a lot less than in 2022, even after bringing in a bigger harvest. In 2023, the five salmon species—pink, sockeye, chum, coho, and Chinook—represented 82% of the regional seafood catch by pounds landed, and 54% of the overall value. Halibut, black cod, crab, and the dive fisheries accounted for just 10 percent of the pounds landed, but 41 percent of the total harvest value. Most of the statewide catch of Chinook, coho, chum, shrimp, Dungeness crab, and the dive fisheries typically occurs in Southeast Alaska.

Seafood processing values were also down significantly in 2023. Shore-based seafood facilities in Southeast Alaska processed 229 million pounds of seafood in the region, with a wholesale value of $508 million, including shore-based processors and direct marketers. This represents a 34% decrease in value over 2022, as 28 million fewer pounds of seafood were processed.

While the full 2024 harvest numbers are not in yet, the catch totals are down and fish prices remain low. Nearly three-quarters (73%) of seafood industry leaders called the early 2024 Southeast Alaska business climate poor or very poor, with 43 percent projecting that the next 12 months will be worse or much worse.[12] Continued challenges are expected for regional fishermen and processors moving into 2025.

The Coast Guard plays a decisive role in managing and safeguarding Alaska's fisheries, an industry that earned upwards of $261 million in Southeast Alaska in 2023.[13] Coast Guard units such as cutters, boat stations, and shore-based units ensure sustainable practices and enforce fishing regulations by patrolling the waters to prevent illegal, unreported, and unregulated fishing, which can threaten marine ecosystems and deplete fish stocks. Additionally, the Coast Guard supports search and rescue operations for fishermen in distress and has noted a 52 percent increase in search and rescue cases from 2017 to 2024.

Recognizing the demanding work and the uniquely large commercial fishing vessel exam workload in Alaska, headquarters signed a provision to allow marine science technicians in Alaska to use the commercial fishing vessel examiner qualification as an acceptable qualification toward advancement. This is a huge commitment to prioritizing the needs of individual communities.

Fishermen off the coast of Kodiak Island, Alaska, pull in a net full of salmon. Twildlife | iStock/Getty Images

Mining

The discovery of gold in the 1880s brought thousands of miners and their families to the area by ship. By 1920, the Juneau-based AJ Mine was the largest low-grade gold mine in the world. Today, approximately 200,000 tons of concentrate—the processed form of raw ore where valuable minerals have been separated from waste material—containing zinc, lead, gold, and silver continue to ship out of Southeast Alaska annually on freight ships and barges. More than 1,000 people work year-round in the mining industry.[14]

Mining jobs in Southeast Alaska were up by 6% and wages were up by 12% in 2023 when compared to 2022.[15] The average annual mining wage was $126,100 in 2022, more than twice the overall regional wage. Three mines in the region account for nearly all mining employment.

- Hecla Greens Creek is one of the largest silver mines in the world. In 2024, the mine had 520 full-time permanent employees and continues to ramp

up production and employment. Greens Creek is the largest private-sector employer in Juneau, as well as the highest taxpayer.[16] In 2023, Greens Creek produced 9.7 million ounces of silver, 61,000 ounces of gold, 51,500 tons of zinc, and 20,000 tons of lead.[17]

- Coeur Alaska Kensington is exclusively a gold mine. In 2023, it produced 84,789 ounces of gold in 2023 and, in 2024, its permanent, full-time staff numbered 369.[18]
- Dawson Mine is a smaller gold and silver project on Prince of Wales Island. The mine reported 48 full-time workers in 2024, and gold production of 12,500 ounces.

Additional mining exploration projects are active in the region, including the Palmer Project in Haines, Herbert Gold in Juneau, and Bokan Mountain and Niblack on Prince of Wales Island.

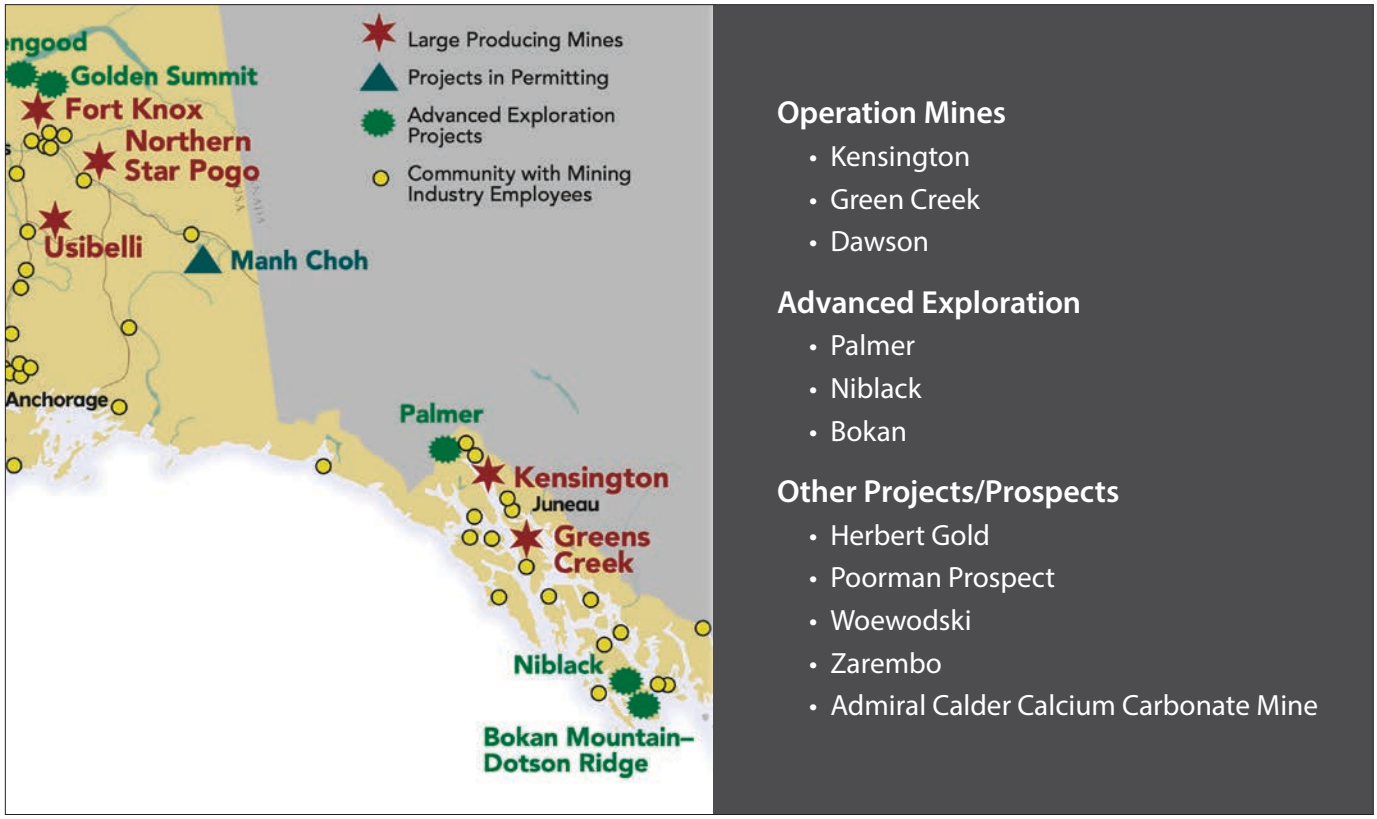
The forecast for mining in the near term is positive with high metals prices and solid production from the areas producing ore. However, the industry continues to be challenged by the shortage of skilled labor. Gold and silver surged in 2024 and are up by 21% since the start of the year. Gold reached a new peak of $2,800 in October 2024.

The Coast Guard plays an important role in supporting mining operations in Alaska, particularly in remote and environmentally-sensitive areas. Coast Guard units ensure safe navigation for vessels transporting mining equipment and cargo by reporting navigation hazards and inspecting support and cargo vessels. It is noteworthy that nearly all the large-scale foreign bulk carriers entering the Southeast Alaska Coast Guard Captain of the Port Zone are in support of mining work. Additionally, the Coast Guard enforces environmental regulations to prevent oil spills and other hazards that could harm Alaska's fragile ecosystems. Most remote mining facilities are unique in that they are set up to receive bulk oil and hazardous materials in pursuit of mining work. These facilities trigger Coast Guard regulations as these goods travel by water and are classified as a waterfront facility.

Alaska Marine Highway System

Ferries are an economic engine for the region's coastal communities. Community, business, and tribal leaders tend to agree that transportation is the lifeblood of coastal communities, and a strong ferry system is essential to local economic development, quality of life, and community well-being.

The Alaska Marine Highway System (AMHS) connects patients to medical providers, shuttles workers to their jobs, and brings visitors, who spend millions on



Rain Coast Data graphic

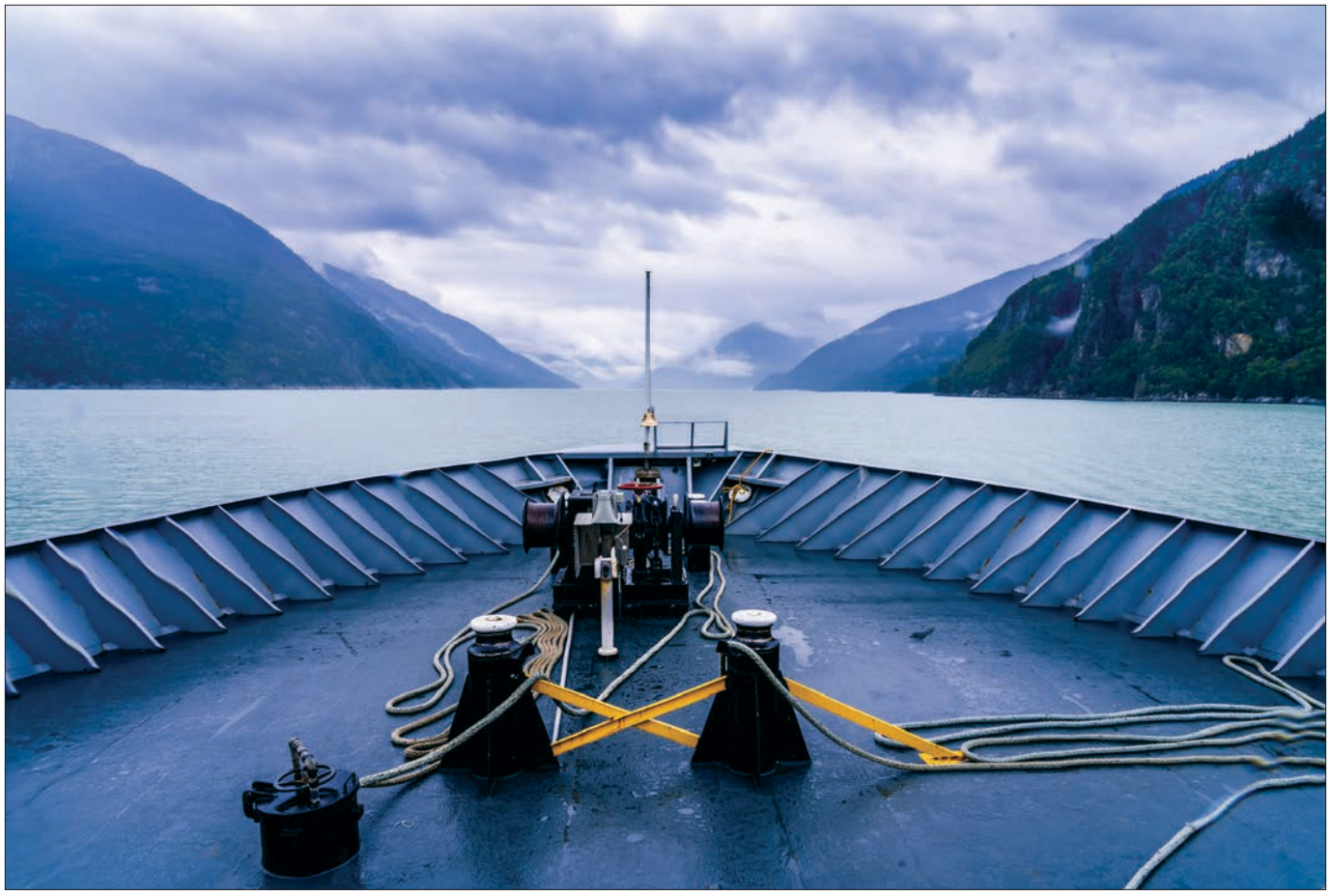
hotels, dining, and recreation, to Alaska, creating jobs throughout the state. The ferry system connects markets and customers, providing a way for the residents of smaller towns and villages to purchase items that their local stores don't carry, boosting the economies of coastal communities.

The marine highway also allows fishermen to affordably move seafood to markets and transport building materials and machinery to support community development. The ferry system transports cargo worth hundreds of millions of dollars, but it is more than a way to access necessities. It allows for social and cultural connections as well. Students, tribal members, and other Alaskans ride the ferry to participate in athletic and academic competitions, cultural gatherings, college fairs, celebrations, festivals, and funerals. In a state as vast as Alaska, AMHS creates the opportunities—economic, social, and cultural—that nourish and sustain our coastal communities.

The Coast Guard plays a crucial role in supporting the safety and security of the AMHS, although it is not involved in the system's day-to-day operations. The Coast Guard is responsible for responding to maritime emergencies for AMHS vessels and conducting inspections to ensure compliance with federal safety standards. This includes checking stability, lifesaving equipment, and firefighting infrastructure. The Coast Guard also maintains navigational aids in Alaska's challenging waters, ensuring safe passage for ferries, and enforces environmental protection regulations to prevent pollution from ferry operations. Additionally, the Coast Guard is involved in maritime security, monitoring for illegal activities and assisting with law enforcement through partnership activities like ferry ride-alongs, essential to fighting the Center for Disease Control's reported 38.68% increase in Alaska for drug overdose-related deaths from 2023 to 2024. Collaborating with the Alaska Department of Transportation and local agencies, the Coast Guard provides critical support in emergencies and works to ensure the overall safety and compliance of the AMHS.

Conclusion

The ocean is central to Southeast Alaska's economic and cultural identity with the region's maritime economy accounting for nearly a quarter of direct regional wages. Subsequently, the maritime sector supports a diverse and



Ferries are vital to Southeast Alaska, providing essential transportation links between remote communities, enabling residents to access goods, services, and opportunities. GRPimagery | iStock/Getty Images.

The 280-foot-long MV *Hubbard*, a ferry operated by the Alaska Marine Highway System, is docked in Ketchikan. The vessel, which entered service in 2023, can carry up to 300 passengers and 53 vehicles. Pabradyphoto | iStock/Getty Images

robust workforce, from fishermen, barge line operators, Coast Guard employees, boat builders, ferry workers, marine welders, whale watching staff, marine biologists, salmon hatchery workers, fish permit clerks, and a host of others.

The maritime industry touches every part of the Southeast Alaska economy, particularly the seafood sector and natural resource industries dependent on maritime logistics, such as the mining sector, as well as the Coast Guard and the AMHS. The maritime economy of Southeast Alaska blends tradition, innovation, opportunity, and challenge. Continued collaboration between industry stakeholders, communities, and regulatory agencies—including the pivotal role played by the Coast Guard—will remain vital to sustainably navigating the region's economic future.

About the authors:

Meilani Schijvens is the owner and director of Rain Coast Data, a Juneau-based firm specializing in Alaska economic analysis, publications, socioeconomic studies, and surveys. With a master's degree in science from the University of Oregon and a bachelor's degree from Colby College, she has authored hundreds of economic publications. She previously served as Southeast Conference's executive director, taught Alaska natural resource history, worked at a mine, and was a staffer for a U.S. Senate minority leader.

Charles L. Westmoreland is energy coordinator for Southeast Conference, the federally designated economic development organization serving Southeast Alaska. He also is a proud Army veteran.

LT Catherine Cavender is a 2017 graduate of the U.S. Merchant Marine Academy, where she earned a Bachelor of Science in marine transportation. She serves as a marine safety officer in the Coast Guard. She recently completed an assignment as Waterways Management and Facilities division chief at Sector Southeast Alaska.

Endnotes:

1. Schijvens, Meilani. "Southeast Alaska by the Numbers 2024." Southeast Conference, 2024, www.seconference.org/publication/southeast-alaska-by-the-numbers-2024/. Original data from Alaska Department of Labor and Workforce Development and U.S. Bureau of Economic Analysis; analysis by Rain Coast Data.
2. Ibid.
3. Schijvens, Meilani. "The Maritime Economy of Southeast Alaska." Southeast Conference, 2013, www.seconference.org/sites/default/files/Maritime%20by%20the%20Numbers.pdf. Data updated to 2023 figures.
4. Schijvens, Meilani. "Southeast Alaska by the Numbers 2024." Southeast Conference, 2024, www.seconference.org/publication/southeast-alaska-by-the-numbers-2024/. Additional analysis from Rain Coast Data based on data from the Alaska Department of Labor and Workforce Development.
5. Ibid.
6. U.S. Coast Guard. "Coast Guard Business Intelligence (CGBI)." Database. Access restricted to USCG personnel.
7. Schijvens, Meilani. "Southeast Alaska by the Numbers 2024." Southeast Conference, 2024, www.seconference.org/publication/southeast-alaska-by-the-numbers-2024/.
8. Ibid.
9. Alaska Department of Labor and Workforce Development. "Alaska Monthly Employment Statistics." Alaska Economic Trends, 2024, https://labor.alaska.gov/trends/.
10. Schijvens, Meilani. "Southeast Alaska Business Climate Survey 2024." Southeast Conference, 2024, www.raincoastdata.com/project/southeast-alaska-business-climate-survey-2024/.
11. Schijvens, Meilani. "Southeast Alaska by the Numbers 2020." Southeast Conference, 2020, www.raincoastdata.com/project/southeast-alaska-by-the-numbers-2020/.
12. Schijvens, Meilani. "Southeast Alaska Business Climate Survey 2024." Southeast Conference, 2024, www.raincoastdata.com/project/southeast-alaska-business-climate-survey-2024/.
13. Ibid.
14. Ibid.
15. Ibid.
16. Nelson, Heather. Community Affairs and Engagement Specialist, Hecla Greens Creek Mine. Personal communication. 2024.
17. Hecla Mining Company. "Hecla Mining Company Annual Report 2023." https://s29.q4cdn.com/244919359/files/doc_financials/2023/ar/HMC_2023_ACO-10K_040924.pdf.
18. Coeur Mining Inc. "Coeur Mining Inc. 2023 Annual Report." https://s201.q4cdn.com/254090064/files/doc_financials/2023/ar/2023-annual-report.pdf.

Key People and Strategies

Expanding the Coast Guard Auxiliary in Arctic and Near-Arctic Alaska

by LCDR C.J. Schleck
Director of Auxiliary
Arctic District
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The Coast Guard's Arctic District spans some of the most remote areas in the United States. From Alaska's Aleutians to the North Slope, long distances, harsh weather, and minimal infrastructure amplify the service's challenges in search and rescue (SAR), pollution response, and maritime security. Expanding the Coast Guard Auxiliary in these Arctic and near-Arctic communities is an increasingly logical step. Although smaller in total numbers, the Arctic District Auxiliary has more than 10 times as many members per capita as districts in the Lower 48 states—and each member logs nearly twice the national average of volunteer hours.

This heightened involvement has real value in Alaska's far-flung regions. A single auxiliarist in a distant village can serve as the Coast Guard's local eyes and ears, shorten response times, and strengthen relationships with residents who might otherwise feel overlooked. Below, we look at the importance of tapping local knowledge, targeted recruitment, and collaborative partnerships to enhance the Coast Guard's readiness. We will also highlight the power of engaged volunteers in a rugged environment.

Local Knowledge and Continuity

Proximity and Community Trust

In isolated Alaskan villages, maritime incidents—oil spills, boating accidents, unreported hazards—often go unseen by federal or state authorities until they reach a critical stage. By contrast, an auxiliarist who lives in the area year-round can relay information almost immediately. Because these volunteers are neighbors, teachers, commercial fishermen, or volunteer firefighters, residents are more likely to share concerns with them. This grassroots familiarity and trust allow the auxiliary to serve as a conduit for timely, accurate reports that inform Coast Guard decisions.

Equally important, auxiliarists can interpret local nuances. Winter in western Alaska might not resemble winter in Southeast Alaska, and ice conditions on the Yukon River differ significantly from those in the Bering Sea. An outside team might not pick up on these subtle variations. A local volunteer, however, has a depth of experience and credibility that newcomers may need months—or even years—to acquire.

Long-Term Stability

Active-duty Coast Guard personnel in the district usually rotate every two to four years, carrying invaluable knowledge with them when they transfer out. Although incoming personnel bring fresh insights, they must often start from scratch in building relationships with local communities. Auxiliarists, by contrast, can spend decades in the same towns or regions. These volunteers

Crews from Coast Guard Air Station Sitka, CGC *Douglas Denman*, Sitka Mountain Rescue, and Sitka Fire Department conducted a week-long search and rescue exercise in Sitka, Alaska, in May 2023. Crews tackled a series of mini scenarios ranging from lost hunters to an avalanche. The exercise culminated with a mass-casualty event involving multiple agencies responding in concert to a scene with 40 survivors in distress. Coast Guard photo by Auxiliarist Don Kluting

function as institutional memory, preserving best practices, local contacts, and lessons learned long after active-duty personnel have moved on. This stability provides an enduring bridge between the Coast Guard's changing workforce and Alaska's geographically dispersed residents.

Recruiting for Specialized Skills

The Incident Command System (ICS) is the common operational language among federal, state, and tribal entities during emergencies. Finding volunteers who already possess ICS experience or relevant backgrounds—firefighting, law enforcement, emergency medical services—enables the auxiliary to integrate seamlessly into Coast Guard missions. Commercial fishermen adept at small-boat handling, or tribal police officers familiar with remote SAR, are also prime candidates. Their local knowledge and ICS expertise can be a force multiplier in crisis scenarios, whether it is a small oil spill or a life-threatening rescue in icy waters.

Agency Representatives and Pollution Responders

Qualified Coast Guard agency representatives or auxiliary pollution responders living in remote locations have proven especially valuable. They can quickly investigate reported spills or other incidents, gather precise information, and begin preliminary containment, if warranted. Prompt action is critical in Alaska where winter storms, ice-choked rivers, or dayslong cutter transits can delay a full-scale Coast Guard response. Empowering auxiliarists with specialized training narrows those gaps, preventing minor incidents from becoming major emergencies.

Demonstrating the Auxiliary's Impact

Public Affairs Specialists as Force Multipliers

One of the most visible ways the auxiliary has contributed is through public affairs specialists who document Coast Guard missions and highlight them to local communities and the broader public. In Sitka, Alaska, Auxiliarist Don Kluting has been instrumental in capturing high-quality imagery of critical operations. His photos and videos showcase the breadth of the Coast Guard's work, from aviation rescues to port security missions. Effectively conveying these stories enhances public understanding of, and support for, the Coast Guard's role in and around Alaskan waters.

Leading Role in "Kids Don't Float"

District auxiliarists have long supported boating safety and education, including the Kids Don't Float (KDF) Program. Former Arctic District Auxiliary Commodore Marion Parrish and, his wife, Jane Parrish—also an Auxiliarist—have taken a leading role by conducting multiple KDF classes in communities like Brevig Mission, Wales, and Shishmaref. They have also offered additional recreational boating safety training with tribal partners in Utqiagvik. These courses teach youth to use life jackets

Coast Guard crews partnered with several state, tribal, and local organizations in Sitka, Alaska, to conduct exercises to improve responses to oil spills in environmentally sensitive areas in April 2024. These organizations worked together to respond to simulated oil spills in Chíx'i Héen Creek and Mosquito Cove in Starrigavan Bay, and deployed boom to create a 500-foot exclusion area to simulate protection of sensitive maritime areas. Coast Guard photo by Auxiliarist Don Kluting

and practice safe boating in environments where waters can be perilously cold year-round. By involving local authorities and tribal councils, the Parrishes' approach to exchanging knowledge has fostered an engaging environment that respects cultural norms while imparting lifesaving skills and robust mutual education.

Large-Scale Oil Spill Exercise in Sitka

In a recent oil spill preparedness exercise in Sitka, auxiliarists from Southeast Alaska united with a range of government, tribal, and industry partners under an ICS structure to test response strategies. These groups worked together to simulate responses to oil spills in Chíx'i Héen Creek and Mosquito Cove, deploying boom to establish a 500-foot exclusion area around sensitive maritime habitats. Coast Guard Air Station Sitka used an MH-60 Jayhawk helicopter to demonstrate transport of an Alaska Emergency Towing System that the Alaska Department of Environmental Conservation funds and pre-stages throughout the state for disabled vessels needing assistance.

Auxiliarists played key roles in ICS positions, demonstrating how volunteer efforts seamlessly integrate with full-time Coast Guard operations. Their involvement ranged from initial planning to deploying containment equipment. This hands-on collaboration sharpened preparedness across multiple agencies while reinforcing local relationships that will be vital in a real spill scenario.

Visible from Air Station Sitka, Alaksa's Mt. Edgecumbe served as the backdrop for an MH-60's routine training flight in December 2024. Coast Guard photo by Auxiliarist Don Kluting

Bridging Isolation and Enhancing Mission Readiness

Sustained Presence in Remote Villages

Because the Arctic District lacks the luxury of a Coast Guard station in every community, auxiliarists function as year-round outposts of Coast Guard expertise. They can conduct preliminary SAR operations, pass on suspicious vessel activity, or gather environmental intelligence. In villages where limited infrastructure or harsh winters make outside deployments intermittent, the presence of even a single trained local volunteer can significantly boost readiness.

Partnering With Tribal and Municipal Governments

Building deeper ties with tribal councils, city administrations, and other community groups is central to the auxiliary's approach. Early engagement with influential elders or leaders paves the way for more seamless recruitment and acceptance of Coast Guard activities. When a village sees tangible benefits—like faster emergency responses or safer boating practices—residents are more inclined to support or even join the auxiliary. This interface fosters a shared sense of responsibility for local waters, rather than viewing the Coast Guard as an external federal force.

Overcoming Logistics and Training Obstacles

Tailored Exercises and Technology

Funding and logistics often limit the frequency of large-scale drills in remote areas. However, smaller, more frequent local exercises—like towing evolutions, cold-water survival drills, or ICS briefings—can keep auxiliarists proficient. Virtual training tools and improved satellite communications also help remote volunteers participate in district-wide or national trainings. Where feasible, the Coast Guard can combine real-world missions, such as routine seasonal patrols, with joint training evolutions providing field experience to local auxiliarists.

Balancing Costs vs. Capabilities

Investing in specialized equipment—winterized boats or personal watercraft, protective gear for Arctic conditions—can be expensive, especially in communities with modest infrastructure. However, these costs often pale in comparison to launching a major cutter or aircraft from hundreds of miles away if an incident spirals out of control. A capable auxiliary facility on-site could initiate lifesaving or pollution containment measures well before

A Coast Guard MH-60 helicopter is loaded onto an Air Force cargo plane for transport to Coast Guard Station Elizabeth City, North Carolina. The aircraft was being retired after reaching the end of its service life—approximately 19,000 hours of flight time. Coast Guard photo by Auxiliarist Don Kluting

outside resources arrive. By integrating local knowledge with essential gear, even a minimal setup can offer a disproportionately large return on investment.

Adapting to Rapidly Changing Environments

Shifts in the weather are accelerating changes in maritime activity across the Arctic. New shipping routes are emerging, coastal erosion is reshaping shorelines, and fishing patterns are in flux. Auxiliarists embedded in these environments see the transformations firsthand—sometimes long before satellite data or official reporting catches up. They can alert the district to emerging risks or opportunities, from newly navigable passages to unusual wildlife migrations that might affect local subsistence practices. This real-time intel helps the Coast Guard anticipate and plan, rather than merely react.

Conclusion

Alaska's Arctic and near-Arctic regions highlight the importance of local engagement, flexibility, and expert coordination—values the Coast Guard Auxiliary has consistently exemplified in the Arctic District. While the operating environment is daunting, the rewards for building a robust volunteer network are clear—faster SAR responses, more effective pollution containment, enduring ties to remote communities, and a well-preserved institutional memory despite frequent personnel rotations.

The recent accomplishments underscore the auxiliary's potential. Public affairs specialists like Auxiliarist Don Kluting increase mission visibility and enhance public support. Leaders such as Commodore Marion Parrish and Jane Parrish deliver critical safety education programs in Arctic villages. During large-scale oil spill exercises, auxiliarists collaborate seamlessly with multiple agencies under ICS, honing skills that will be vital should a real environmental disaster strike.

As maritime traffic grows and ice conditions change, the district's demands will only intensify. Harnessing the dedication and local expertise of Alaskans through targeted recruiting and practical training is key to meeting these challenges. When volunteers and active-duty Coast Guard members unite—bolstered by ICS familiarity, specialized skills, and deep cultural ties—everyone benefits. The Coast Guard fulfills its mission more effectively, and Alaskan communities gain a trusted partner committed to their safety and well-being in some of the most challenging waters on Earth.

About the author:

LCDR C.J. Schleck has served as director of Auxiliary, Coast Guard Arctic District, since August 2022. A Rutgers bioenvironmental engineering graduate and 2010 Officer Candidate School alumnus, he previously held assignments in vessel inspections, MH-60T aviation, international port security, and executive assistance in the Coast Guard Atlantic Area. He and his wife proudly call Alaska home.

The Coast Guard Reserve in the Last Frontier

Sector Western Alaska and U.S. Arctic reservists' role across the Arctic District

by LT Aimee Valencia
Department Head
Reserve Emergency Management Force Readiness
Sector Western Alaska & U.S. Arctic
U.S. Coast Guard

CWO2 Samantha Fisher
Department Head
Reserve Response
Sector Western Alaska & U.S. Arctic
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In Alaska's vast, challenging environment, reservists assigned to Sector Western Alaska and U.S. Arctic play a critical role in supporting the operations of the Coast Guard's Arctic District. They balance local mission demands with national response efforts, augmenting the Coast Guard's readiness posture and supporting the service's ability to respond to the diverse needs throughout this geographically expansive and remote region. Despite being a small contingent within the unit, Sector Western Alaska's reservists are integral to maintaining maritime safety, security, and environmental protection in one of the world's most dynamic and hazardous operational environments.

The sector exemplifies the successful integration of active duty and Reserve components ensuring mission success in its geographically diverse area of responsibility (AOR). This AOR spans the economically vital ports of Alaska and Valdez, the North Slope, Aleutian Island chain, Bering Sea, and the geopolitically strategic Arctic region. The sector is billeted for 318 active duty and 27 Reserve personnel, yet despite the ongoing difficulties filling Reserve billets in remote Alaska, the unit manages to maintain 97% billet coverage, a remarkable feat considering the challenges in the region.

Challenges and Opportunities for Reservists in Alaska

Unlike Reserve units in the continental United States, reservists from Sector Western Alaska and U.S. Arctic face distinct challenges due to the region's extreme distances, unpredictable weather, and logistical hurdles. Reservists are dispersed across Alaska in cities like Kodiak, Homer, Fairbanks, and Kenai, as well as residing outside the state, including Washington, Texas, and Wisconsin. Many of those living outside Alaska do so because the state has a limited pool of individuals with the necessary expertise, prompting these reservists to volunteer or be assigned to fill critical gaps in personnel and capability. These distances present significant logistical challenges, especially during Alaska's harsh winter months when travel becomes more difficult and expensive. With the high cost of travel and the impact of winter conditions on readiness, maintaining operational capability remains a constant challenge for the unit.

However, these challenges also offer unique opportunities. Reservists are directly involved in high-profile Arctic operations that offer valuable hands-on experiences and are exposed to a diverse range of mission sets that aren't necessary in other areas of the Coast Guard. This includes enforcement of laws vital to the state's economy, particularly the commercial fishing industry, and operating in remote Arctic communities.

Augmentation to Expand Operational Capacity

Despite the size of Sector Western Alaska's Reserve team, its contributions are significant and provide invaluable support to various Coast Guard operations. On a yearly basis, all 26 currently assigned reservists are required to complete 24 training days and two weeks of active-duty orders in support of various missions, totaling 936 person-days. According to internal administrative reports, 40% of this reservist team volunteered for additional orders in 2024, accumulating a total of 2,229 person-days of support—equivalent to 6.1 full-time employees. These personnel augment the Coast Guard's ability to maintain security, enforce maritime regulations, and respond to emergencies in some of the most remote areas of the country.

Station Valdez and Ports, Waterways, and Coastal Security

Reservists bolster station operations by conducting law

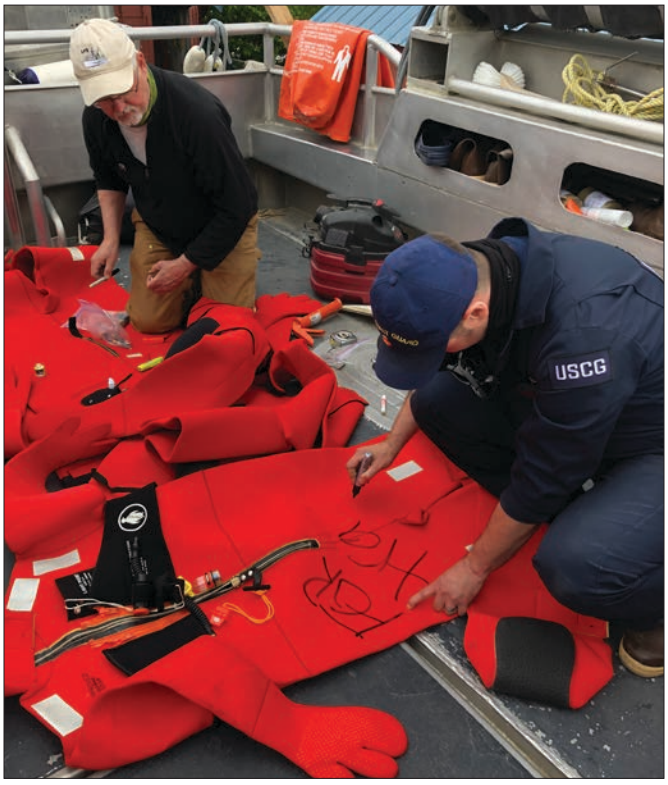
Coast Guard reservists watch as crab pots are weighed during a commercial fishing vessel inspection. Reservists are often called upon to assist with the hundreds of commercial fishing vessel examinations that occur in Alaska every year. Coast Guard photo by Petty Officer 2nd Class Holly Bernosky

enforcement patrols and security operations. In 2023, Station Valdez reservists completed 225 underway hours during drill periods, contributing to search and rescue and ports, waterways, and coastal security mission areas.

Using additional Arctic District funding, the crew advanced their qualifications while supporting daily operations. Those missions include safeguarding critical infrastructure and ensuring the security of maritime activities, particularly in relation to the Port of Valdez.

Law Enforcement and Individual Fishing Quota Operations

Commercial fishing is a $6 billion industry for the Alaskan economy, and reservists play a crucial role in enforcing regulations and ensuring sustainability. In 2023, sector enforcement reservists conducted more than 276 hours of law enforcement training, and 80 hours of operations and unit support. This included the qualification and recertification of three boarding officers. They assisted in fishing quota enforcement, ensuring that commercial fishing remains compliant with environmental and economic regulations designed to protect Alaska's living marine resources. The latest operation involved



During safety equipment checks on board fishing vessels, inspectors examine immersion suits for failures, flaws, or damage. While conducting these examinations, a sector reservist found a manufacturing defect that culminated in the company issuing a recall of the suit. Coast Guard photo by Petty Officer 2nd Class Holly Bernosky

a partnership with National Oceanic and Atmospheric Administration, the National Park Service, and state agencies that resulted in 10 boardings, five issued citations, and two written warnings—highlighting the collaborative efforts among the Coast Guard and other government agencies in the region.

Marine Safety and Enforcement in Remote Alaska

The Coast Guard's mission extends far beyond the urbanized areas of Alaska. Reservists are frequently deployed to remote Western Alaskan and U.S. Arctic communities, where they conduct vessel inspections, oversee pollution prevention measures, and ensure regulatory compliance in areas that are often hard to reach by other means. This also means engagement with dozens of federally recognized Alaskan Native entities. In FY 2023, reservists performed more than 300 vessel examinations and 54 oil storage facility inspections, identifying over 130 deficiencies during 46 total days of training and support in remote Alaska. Identifying deficiencies allows community members to apply for grant monies for necessary repairs, reoutfitting, and equipment upgrades they may not otherwise have easy access to.

The Port of Valdez is the United States' 24th busiest port for total tonnage, handling significant volumes of oil and gas from Alaskan oil fields.

In preparation for spill responses, a Sector Western Alaska reservist, right, and state regulators monitor boom deployment during a geographic response strategy exercise. Coast Guard photo by Petty Officer 2nd Class Holly Bernosky

Emergency Management and Response Support

In addition to their regular duties, reservists participate in Arctic Marine Safety Task Force operations, contributing to the formation of an Arctic coordination team tasked with enhancing the region's response capacity. Reservists processed 236 sets of orders and managed more than $800,000 in travel funds for operations, according to internal administrative records. Their cost-saving measures saved the Coast Guard more than $160,000. Their involvement extends beyond Alaska as they support nationwide emergency responses, including those for natural disasters, like hurricanes and wildfires, where their flexibility and rapid deployment capabilities prove invaluable.

Nationwide Response: Beyond Alaska

Sector Western Alaska and U.S. Arctic reservists are frequently called upon to participate in national disaster response efforts, demonstrating the critical importance of their role in supporting Coast Guard operations far beyond their home regions. In the past few years, they have been mobilized for:

Hurricane Response

Sector Western Alaska reservists have deployed to assist following major hurricanes in the Gulf of America and along the East Coast. Recently, this has included responses to Hurricanes Helene, Milton, Ida, and Ian in the United States and Typhoon Mawar in the Philippines. Their maritime safety and disaster response expertise has been critical in supporting recovery operations and coordinating relief efforts in the aftermath of devastating storms.

Maui Wildfires

In the wake of the 2023 Maui wildfires in Hawaii, reservists supported Federal Emergency Management Agency response efforts, coordinating operations to provide search and rescue, environmental response, and humanitarian relief efforts in a region grappling with unprecedented devastation.

Guantanamo Bay Operations

As part of the Coast Guard's global mission, reservists have supported Joint Task Force Guantanamo in Cuba for

more than 20 years until 2023. In support of Operation Enduring Freedom, teams provided maritime antiterrorism force protection by safeguarding DoD assets and personnel with patrols, defense security, and search and rescue services in the surrounding seas.

These nationwide deployments underscore the versatility and critical importance of reservists in supporting local, regional, and national missions. Their ability to mobilize rapidly and work seamlessly within larger response frameworks and agencies makes them indispensable to the success of Coast Guard and other Department of Homeland Security operations.

Conclusion

As the Coast Guard continues to expand its Arctic presence, the reservists of Sector Western Alaska and U.S. Arctic remain a key force multiplier. Even as a small unit, they contribute significantly to mission success throughout the Arctic District. Extending beyond local operations, they are regularly called upon to assist with national disaster response and support the Coast Guard's broader mission objectives.

The work of these reservists is a testament to their dedication, balancing civilian careers with their commitment to safeguarding maritime safety and security. In 2024, they achieved an impressive 95% overall readiness score—a metric reflecting a members' overall deployability based on medical clearance and training completion. The team accomplished an 81% completion rate for attainable primary qualifications—qualifications assigned to billeted personnel required for mission success. As Arctic operations increase in complexity and scale, the role of reservists will become even more crucial. Their ability to augment Coast Guard capabilities in one of the world's most remote and challenging environments demonstrates the strength and resilience of the Reserve component.

The dedication of the reservists in Sector Western Alaska and U.S. Arctic underscores the importance of their contributions, not only in maintaining readiness but also in strengthening the Coast Guard's response capabilities on a national level. Their work in the Arctic and beyond represents a vital part of the Coast Guard's ongoing mission to protect life, property, and the environment in the maritime domain.

As the Arctic continues to evolve, reservists will only grow in importance, further reinforcing their critical role in ensuring the security and safety of the maritime environment.

About the authors:

LT Aimee Valencia served on active duty for six years at duty stations in Puerto Rico, Bahrain, and San Francisco. In 2022, she moved to Homer, Alaska, and transferred into the Selected Reserve. In her civilian life, she is both a charter fisherman and a nursing school student.

CWO Samantha Fisher has served 13 years in active duty and Reserve status at duty stations in Baltimore, San Francisco, Seattle, and Alaska. Although living in Anchorage, she frequently deploys to support incidents across the Coast Guard. In her civilian life, she is a financial advisor and emergency management consultant.

Oil spills on ice and snow can occur anywhere in Alaska. Every winter, Alaska Navy Supervisor of Salvage and Diving hosts the annual Oil Spill on Ice exercise and equipment deployment. Responders from multiple agencies around the state attend to learn and practice techniques using equipment on ice. Coast Guard photo by Petty Officer 2nd Class Holly Bernosky

Understanding Coal

by *LT Eva McNell*
Staff Engineer
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What is it?

Coal, a highly combustible material, is a sedimentary rock primarily composed of amorphous carbon and hydrocarbons which, due to its energy density and relatively low cost as fuel, is the largest source of electricity generation in the world. It falls under the classification of "materials hazardous only in bulk" in both its bituminous and anthracite forms. It is regulated in maritime transportation by the U.S. Coast Guard, the Department of Transportation, and the International Maritime Organization (IMO).

Why should I care?

Energy Production

About half of the United States coal—the nation's most abundant fossil fuel—is bituminous. Bituminous coal varieties consist of smithing, cannel, and coking coal. The steel industry relies heavily on coking in production efforts due to its low moisture content and stability. Globally, China is the leading producer of coal, followed by India, Indonesia, and the United States respectively.

Environmental & Human Health Impacts

When burned, the carbon contained in coal reacts with oxygen to form carbon dioxide, or CO2. Coal can contain varying amounts of sulfur, which oxidizes to form sulfur dioxide, or SO2 which can form sulfuric acid when it reacts with water. Similarly, nitrogen compounds in coal are oxidized to form nitrogen oxides, or NOx. Fine particulate matter formed during coal combustion penetrates the lungs and contributes to respiratory, cardiac, and cancer mortality. While coal is almost phased out as a source of maritime fuel, SO2 and NOx emissions are of international environmental concern and regulated by the IMO.

Shipping Hazards

Coal emits methane, a flammable gas, which can create combustible atmospheres in transport. A mixture of air containing 5% to 16% methane is susceptible to ignition and constitutes an explosive environment. Additionally, coal may undergo oxidation, a process during which oxygen is depleted and concentrations of CO2 or carbon monoxide (CO) build in the cargo space.

Some coals may react with water producing flammable and toxic gases, such as hydrogen, or acids which may cause corrosion. Lastly, coal is subject to spontaneous heating, which can lead to spontaneous combustion in the cargo space. This is why shipment of hot coal briquettes is forbidden.

What is the Coast Guard doing about it?

All vessels carrying coal are subject to Coast Guard inspection as part of the service's responsibility to enforce maritime transportation requirements for all solid bulk cargo. The Office of Design and Engineering Standards (CG-ENG) at Coast Guard Headquarters creates and interprets domestic regulations related to marine transportation of coal and represents the United States' views regarding international solid bulk cargo transportation at the IMO. Additionally, the Hazardous Materials Division within CG-ENG is responsible for reviewing and approving Moisture Management Plans for solid bulk cargoes which may liquify or undergo dynamic separation, including coal.

About the Author:

LT Eva McNell is a staff engineer in the Office of Design and Engineering Standards' Hazardous Materials Division. She graduated from the U.S. Coast Guard Academy in 2017 with a B.S. in marine and environmental sciences and holds an M.S. in environmental engineering from the University of California, Berkeley.

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References:

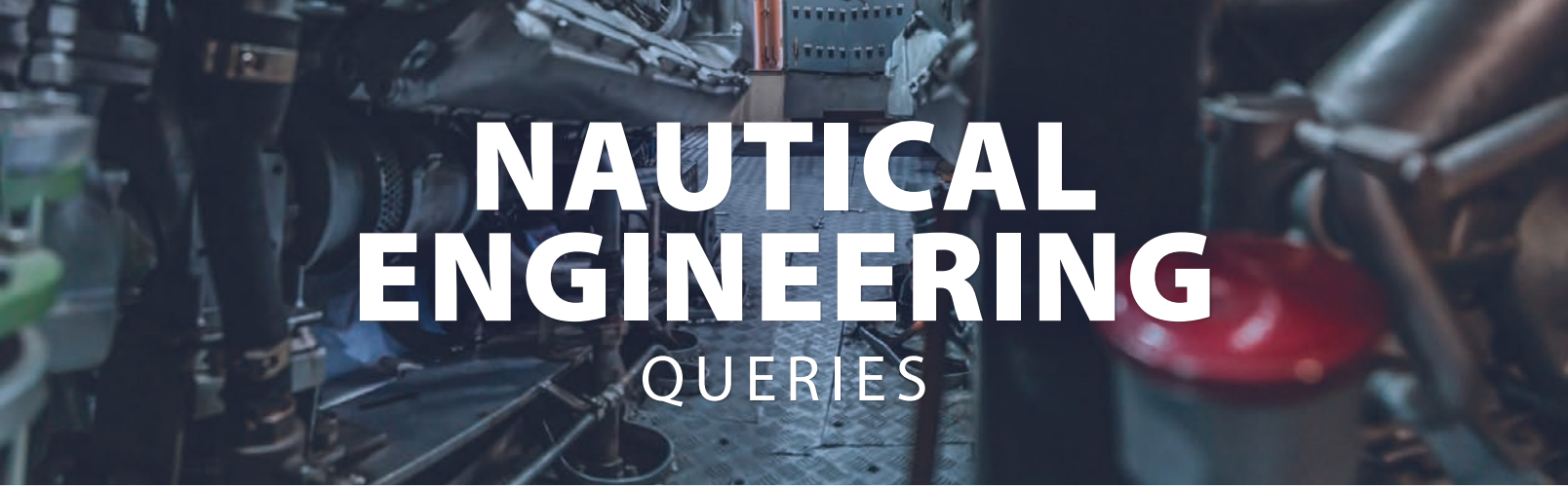
International Maritime Organization. (2023). *International Maritime Solid Bulk Cargoes Code*. IMO.

United States of America. (2024). *Title 46 Code of Federal Regulations: Shipping, Part 148 – Carriage of Bulk Solid Materials That Require Special Handling. Office of the Federal Register.*

United States of America. (2024). *Title 49 Code of Federal Regulations: Shipping, Part 172 – Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans*. Office of the Federal Register.

U.S. Energy Information Administration. (2024). *Annual Coal Report* 2023. https://www.eia.gov/coal/annual/pdf/acr.pdf

U.S. Energy Information Administration. (2024). *Coal and Coke*. https://www.eia.gov/international/data/world/coal-and-coke/coal-and-coke-production



NAUTICAL ENGINEERING QUERIES

Prepared by NMC Engineering Examination Team

1. In a diesel engine jacket water cooler, with sea water cooling the fresh water, the _____ .

A. Jacket water temperature must always be less than 60 F
B. Sea water temperature must never be warmer than 40 F
C. Jacket water pressure should always be greater than the sea water pressure
D. Jacket water pressure must always be less than the sea water pressure

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2. Which of the following desalination plants will always require a sterilizer when providing water to a potable water system?

A. Titanium plate-type unit
B. Reverse osmosis-type unit
C. Multistage flash-type unit
D. Submerged tube-type unit

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3. Assuming that a three-phase synchronous motor is separately excited, what statement is true concerning power supplies?

A. The rotor winding via slip rings and brushes is connected to a three-phase AC power source, and the stator winding is directly connected to a DC power source.
B. The rotor winding via slip rings and brushes is connected to a three-phase AC power source, and the stator winding is directly connected to a single-phase AC power source.
C. The rotor winding via slip rings and brushes is connected to a DC power source, and the stator windings are directly connected to a three-phase AC power source.
D. The rotor winding via slip rings and brushes is connected to a single-phase AC power source, and the stator winding is directly connected to a three-phase AC power source.

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4. Reaching which "end point" will result in the most severe damage to the boiler?

A. Combustion
B. Carryover
C. Circulation
D. Atomization

1. A. Jacket water temperature must always be less than 60 F — Incorrect answer

B. Sea water temperature must never be warmer than 40 F — Incorrect answer

C. Jacket water pressure should always be greater than the sea water pressure — **Correct Answer:** *"In order to prevent leakage of raw water into a closed system if the tube ends eventually become loose in the tube plates, the pressure of the raw water should be always less than that of the soft water."*

D. Jacket water pressure must always be less than the sea water pressure — Incorrect answer

Reference: Diesel Engine Operation and Maintenance, Maleev, page 237

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2. A. Titanium plate-type unit — Incorrect Answer

B. Reverse osmosis-type unit — **Correct Answer:** *"Treatment is necessary to make the water product of reverse osmosis distillers potable. A sterilization that uses ultraviolet radiation is utilized."*

C. Multistage flash-type unit — Incorrect Answer

D. Submerged tube-type unit — Incorrect answer

Reference: Marine Auxiliary Machinery, Mc George, p. 101, 104

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3. A. The rotor winding via slip rings and brushes is connected to a three-phase AC power source, and the stator winding is directly connected to a DC power source. — Incorrect answer

B. The rotor winding via slip rings and brushes is connected to a three-phase AC power source, and the stator winding is directly connected to a single-phase AC power source. — Incorrect answer

C. The rotor winding via slip rings and brushes is connected to a DC power source, and the stator windings are directly connected to a three-phase AC power source. — **Correct Answer:** *"Minimum rotor and stator connections required for starting and running a synchronous motor."*

D. The rotor winding via slip rings and brushes is connected to a single-phase AC power source, and the stator winding is directly connected to a three-phase AC power source. — Incorrect answer

Reference: Operation, Testing, and Preventive Maintenance of Electrical Power Apparatus, Hubert p. 245

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4. A. Combustion — Incorrect answer

B. Carryover — Incorrect answer

C. Circulation — **Correct Answer:** *"When the end point for circulation is reached, there will be extensive damage to material and likely injury to personnel."*

D. Atomization — Incorrect answer

Reference: Intro. to Marine Engineering, Latham, p. 1-20

NAUTICAL DECK
QUERIES

Prepared by NMC Engineering Examination Team

1. INLAND ONLY For the purposes of the Inland Navigation Rules, the term "inland waters" includes which of the following?

A. The coastline of the United States out to one mile offshore
B. The waters surrounding any island of the United States
C. Any lakes within state boundaries
D. The Great Lakes on the United States side of the boundary

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2. Which is the proper term used to describe a stream of water immediately surrounding a moving vessel's hull, flowing in the same direction as the vessel?

A. Directional current
B. Forward current
C. Wake current
D. Propeller current

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3. How should a message warning of a tropical storm be sent?

A. Safety message
B. Urgent message
C. Distress message
D. Routine message

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4. Tropical cyclones are classified by form and intensity. Which system does NOT have closed isobars?

A. Hurricane
B. Tropical disturbance
C. Tropical depression
D. Cyclone

1. A. The coastline of the United States out to one mile offshore — Incorrect

B. The waters surrounding any island of the United States — Incorrect

C. Any lakes within state boundaries — Incorrect

D. The Great Lakes on the United States side of the boundary — **Correct Answer:** *"Inland waters means the navigable waters of the United States shoreward of the navigational demarcation lines dividing the high seas from harbors, rivers, and other inland waters of the United States and the waters of the Great Lakes on the United States side of the international boundary."*

Reference: Inland Navigation Rule 3(q)

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2. A. Directional current — Incorrect answer

B. Forward current — Incorrect answer

C. Wake current — **Correct Answer:** *"…a body of water that is carried along by a vessel due to the friction on its hull as it moves through the water."*

D. Propeller current — Incorrect answer

Reference: Chapman Piloting and Seamanship, 68th Ed., page 180

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3. A. Safety message — **Correct Answer:** *"Securite (Safety) indicates that the station is about to transmit a message concerning the safety of navigation or giving important meteorological warnings."*

B. Urgent message — Incorrect answer

C. Distress message — Incorrect answer

D. Routine message — Incorrect answer

Reference: Publication 102, International Code of Signals, 2020 Ed., page 144

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4. A. Hurricane — Incorrect

B. Tropical disturbance — **Correct Answer:** *"These systems generally do not have strong wind or closed isobars (i.e., isobars that completely enclose the low)."*

C. Tropical depression — Incorrect

D. Cyclone — Incorrect

Reference: The American Practical Navigator, Vol. I, 2024 Ed., Section 4001

IN THE ***NEWS***

U.S. Coast Guard Petty Officer 3rd Class Scott Ruskan, a rescue swimmer assigned to Air Station Corpus Christi, poses for a photo at the Kerrville Airport in Kerrville, Texas, on July 6, 2025. Ruskan responded to flash flooding in the Texas Hill Country as part of a Coast Guard aircrew conducting search and rescue operations. Guard photo by Petty Officer 3rd Class Perry Shirzad

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An Air Station Kodiak C-130J Super Hercules prepares to depart from Bethel, Alaska, in January 2022. Alaska's weather is harsh and often unpredictable which adds to the USCG Arctic District's operational challenges in the region. Coast Guard photo by LT Scott Kellerman

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