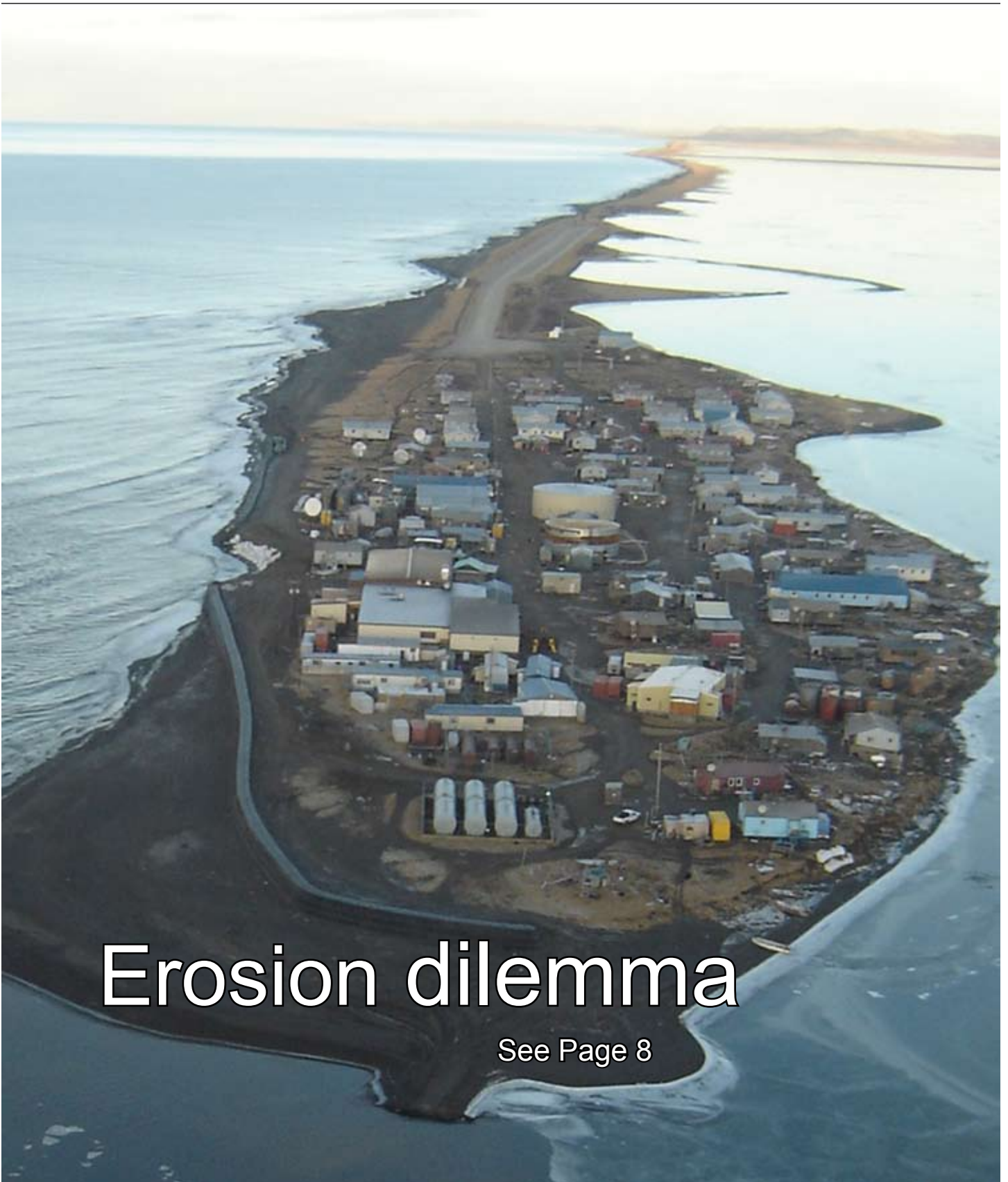




# Arctic Engineer

*"Building and Preserving Alaska's Future"*



## Erosion dilemma

See Page 8

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**Years of erosion has left almost no buffer against waves invading the village of Kivalina. (Courtesy photo)**

# New district publication launched

It's been awhile since the District has printed a publication, but we're back on track beginning with the first issue of the "Arctic Engineer."

In it, we hope to highlight many of the accomplishments of the District and showcase what a great place Alaska is to live and work. We are proud of what we have achieved and realize we touch many lives with what we do, whether it is helping the military achieve its construction objectives or in the many ways the District helps restore and preserve Alaska's land and waterways.

One of the District's operational plan objectives is to strengthen our alliance with our customer. A component of that goal is to expand and reach out to communicate our capabilities, successes and opportunities.

In this inaugural issue, we touch on all three.

Of great concern to many Native Alaskans is the disappearance of their communities from erosion, which has been referred to by some as "a slow-motion disaster." Erosion along rivers and ocean coastlines isn't by any means new, but various factors have led to a situation that has in some cases demanded emergency response.

Our Civil Works program has been involved in reinforcing shoreline and continues to study ways to help solve this problem, but it's going to take a concerted effort from different agencies to adequately bring about the appropriate solution.

Ironically, the same global climate change that is affecting erosion has not caused Hubbard Glacier to shrink. In fact, this tidewater glacier is growing. The situation could be devastating to the fishing-based economy of Yakutat if a closure at the Russell Fjord forms a flooding lake that spills into the Situk River, which is world-renowned for its steelhead trout. Corps employees are keeping watch of the glacier's movement and studying alternate ways to mitigate damage.

Instead of damage control, military construction is about improvement and growth.

It is another major part of the District mission that has become increasingly important as the Air Force has realigned while the Army population has nearly doubled in Alaska. With training space and capability unmatched on The Last Frontier, the military is continually needing upgrades and expansion to existing infrastructure.

One such upgrade was the hydrant fueling system at Eielson Air Force Base.

Aircraft fueling has become simpler and faster with the project that included a new ramp for accommodating the

Air Force's larger and heavier aircraft. Lessons learned at Hickam Air Force Base and Elmendorf Air Force Base were applied to Eielson for a project that should meet the 354th Fighter Wing's needs for years to come.

At Fort Wainwright, our project delivery team claimed a remarkable accomplishment by completing an Army replacement family housing project in little more than half the time normally scheduled and with zero cost growth. These homes rival those found in any modern residential civilian neighborhood and are part of how we support our soldiers and their families as our nation fights the Global War on Terror.

Speaking of deployments, the District is to be commended for its participation in the war effort and in civil emergency response. In this issue, you can read how one of our employees, Dean Homleid, a program manager at Eielson Air Force Base, turned a six-month tour into a two-year adventure, working to support the rebuilding of Afghanistan. That country is a better place for the efforts of Dean and others who volunteer to serve in these special roles.

Another District objective is employee recruitment and retention. We're looking into tangible ways to provide a higher quality of life for our employees through an improved work environment and by encouraging our people to embrace the unique recreational opportunities available in Alaska.

One way we've tried to satisfy this goal is through the formation of the Health and Wellness Committee. An event sponsored by the committee this summer was a trip to pick wild blueberries on the scenic hillsides of Anchorage.

On several occasions, I've gone berry picking with my wife. Although I conveniently find an excuse to leave the kitchen when it comes time to pick out the stems and leaves, there's no denying the appeal of fresh wild blueberries baked into muffins, a pie or eaten by themselves.

No doubt we will face the "stems and leaves" that mingle into our projects and activities. Yet we will remain on task knowing that the final result is worth all the effort. It's what the taxpayers expect and our customers demand. It's about delivering.

I hope you enjoy the new publication. If you have feedback on what you liked or what needs to be improved, please let the editorial staff know.



Col. Kevin Wilson

A handwritten signature in black ink, appearing to be the name of the author, written in a cursive style.

# Fast track

## 'Southern Cross' leads way in growth of family housing

By Curt Biberdorf  
Editor

If time constraints and tough environmental regulations weren't difficult enough, then ice fog, potential seismic activity and an eight-month-long winter with temperatures that can plunge to 50 below zero brought extra complexity to the U.S. Army Corps of Engineers-Alaska District Project Delivery Team in charge of building a \$42 million Army housing project in Fort Wainwright, Alaska.

Despite these challenges, the team met all project requirements with zero cost growth in 447 days instead of the 820 days normally allotted for a project of this magnitude in subarctic Alaska. The project was completed in May 2007 except for landscaping, which had to wait until the snow melted.

"Many of the private-sector subcontractors expressed disbelief that this was a government project or a Corps project," said Terry Stone, program manager. "They didn't believe the project could move along quickly,

but the Army mission has changed, and we initiated a fast-track process to give soldiers and their families quality housing as quickly as possible."

The Southern Cross project replaced 112 Junior Non-Commissioned Officers (JNCO) units with 67 JNCO units in the Southern Cross community. It is the first completed project of a larger program of 15 ongoing projects to build 1,057 Army housing units within five years at a cost of more than \$573 million.

### Curb appeal

Fast-track military housing is high-priority because U.S. Army Garrison, Alaska realized in 2005 it was facing a critical shortage of housing units to support the growing mission at Fort Wainwright. Now home to the 1st Brigade Combat Team, 25th Infantry Division (formerly 172nd Stryker Brigade Combat Team), Fort Wainwright has seen skyrocketing growth as the Army transforms to become a leaner, more responsive fighting force resulting from Army Transformation and the War on Terror.

Alaska District's challenge is to support U.S. Army Alaska in their commitment to provide housing developments for the 6,200 soldiers and 7,300 family members stationed at Fort Wainwright, located near Fairbanks.

Speed didn't sacrifice quality at Southern Cross, as the team aimed at meeting or exceeding what is found in the civilian market.

"We wanted curb appeal. We wanted people to think 'Wow!' I want to live there," said Cyndi Larson, chief of the Residential Communities Initiative and Housing Office at Fort Wainwright.

Color, design and elevation vary from structure to structure. The homes feature 9-foot ceilings and arctic entryways that lead to an open floor plan with different-shaped windows allowing plenty of daylight to enter. Flooring is a combination of vinyl, laminate and carpet. Radiant heating is used on the first floor, cabinets and trim are solid oak, and ceiling fans are mounted in the family room and bedrooms.

Solid-surface countertops inside



Courtesy photo

This snow-covered house is one of 67 Junior Noncommissioned Officer units built in the Southern Cross community at Fort Wainwright. It is the first completed project of a larger program of 15 ongoing projects to construct 1,057 Army housing units within five years at a cost of more than \$573 million.

along with vinyl siding and decorative trim aluminum fencing for the backyard on the outside contribute to longevity and low maintenance. The homes have an oversized single-car garage and are five-star-rated for energy efficiency. Courtyards with play areas and park benches add another touch to the community.

“Most rewarding is to get the positive feedback from the soldiers and their families,” Stone said. “That brings it home as to why we worked so hard to complete this project.”

The team included personnel from U.S. Army Garrison, Alaska; U.S. Army Installation Management Command; U. S. Army Corps of Engineers Pacific Ocean Division and Alaska District; Headquarters U.S. Army Corps of Engineers and Assistant Chief of Staff for Installation Management. Private sector firms were Helix Design Group, HDR Alaska, Earthscape, AHBL, Spurlock & Associates Inc., Errico Electrical Engineering, BHM, Shannon & Wilson Inc., and construction contractor Osborne Company, Inc., along with other subcontractors and suppliers.

Because of their efforts, the team received the 2007 U.S. Army Corps of Engineers Project Delivery Team Excellence Award and was recognized at the semi-annual Army Corps of Engineers Summer Leaders Conference at Providence, R.I., Aug. 6.

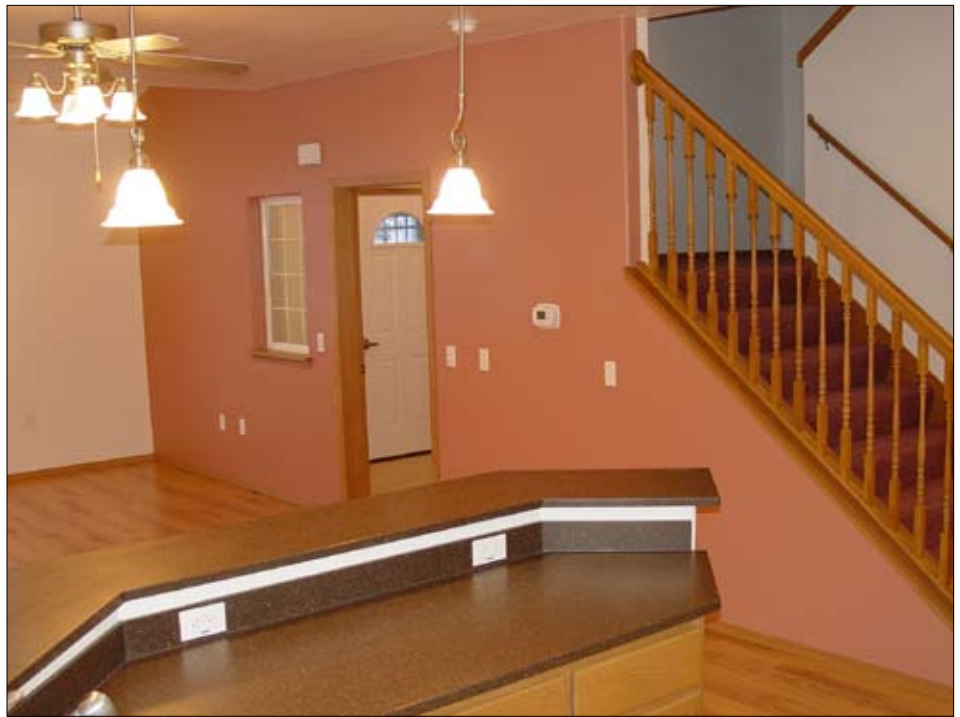
### **No stereotypes**

Fast-tracked design was released for construction in four definable features of work: demolition, site preparation, building and landscaping.

The design and construction process changes included informal reviews, elimination of 65 percent of design submittals, decreased government review periods and use of product data in lieu of prescriptive specifications. A design quality manager was used for the first time, which increased efficiency, according to Stone. Construction continued year-round.

“We put the old stereotypes aside and let the experts in the field tell us what they could do,” said Stone. “I don’t think anybody thought we could do something this aggressive. It was evident we had a proposal we really wanted to work with. It was exciting. Osborne said we can do this, but the government has to do their part. Any part down would have been catastrophic.”

Maintaining the quality objectives while accelerating the schedule to expedite turnover of homes to the



Courtesy photo

**Nine-foot ceilings, arctic entryways, windows with various shapes and solid-surface kitchen countertops are a few of the interior features.**

soldiers and their families was the compelling challenge of this project, according to Stone.

“We had the right people on the right teams,” Larson said. “Everybody kept the goal in mind. We all signed on to make that happen.”

The team excelled even when faced with shifting project needs and customer demands. Construction projects had priority for resources while the team maintained the goal of having acquisition documents and designs ready to advertise in time to meet customer and Corps-driven deadlines.

“We were building one part of the design while other parts of the design were being developed,” said Monica Velasco, program engineer with the Alaska District.

During the design phase, the team continually coordinated instead of only in traditional specific design-review stages. It met on key dates for reviews, meetings and pre-construction activities.

### **Fully engaged**

“It was an extraordinary example of informal partnering,” said Stone. “Team members took on critical non-traditional roles and improved processes necessary to fast-track the design. The workload was overwhelming, but when somebody was gone, another person would fill in.”

The same level of involvement continued into and throughout

construction as team members met interim construction milestones required for turnover of completed buildings. The team was able to maintain perspective on the issues themselves and also on how the issues impacted overall project delivery.

“All tried to keep track of each other’s milestones. It was an intense challenge for the team to maintain balance among so many varying, time-sensitive requirements, and it required great flexibility to juggle the often conflicting tasks,” Larson said.

The entire team, including the customer, maintained a high level of involvement and communication even though they were geographically separated in Anchorage, Fairbanks and Washington state. This intensity accelerated resolution of issues and resulted in the immediate transfer of lessons learned to other projects, said Stone.

“Never say it can’t happen. You can break the paradigm that is entrenched and established,” she said. “Had we done the standard way, we still wouldn’t have the units turned over yet.”

Stone said it took great commitment, trust, and, at times, sacrifices from all the team members to make this approach work.

Shared goals, reinforced by personal relationships, created the willingness to take these kinds of risks, and success simply would not have been possible without their efforts.

# Glacier watch

## Study monitors threat of flooding to fishing river

By Curt Biberdorf  
Editor

Dig, drill or blast.

When these three ideas proved too costly or impractical to solve a potential economic disaster to the town of Yakutat caused by an overflowing lake flooding its prized Situk River, the logical choice was to do nothing.

Instead, the U.S. Army Corps of Engineers-Alaska District, in cooperation with other state and federal agencies, focused their efforts on monitoring Hubbard Glacier—a growing tidewater glacier that could form a flood-causing dam—developing contingency plans and exploring different possibilities to preserve Yakutat's fishing-dominated economy.

An anomaly compared to mountain or valley glaciers shrinking in response to global climate warming, Hubbard Glacier is one of eight calving glaciers in Alaska that are increasing in mass and advancing, and the longest tidewater glacier in America, according to the U.S. Geological Survey (USGS).

Hubbard Glacier spans 76 miles

from its source on Mount Logan in the Yukon Territory to the sea north of Yakutat, a town between Anchorage and Juneau in southeast Alaska, in Disenchantment Bay. It has an open calving face more than 6 miles wide and is joined by Valerie Glacier to the west, which is contributing to the advance in the ice flow that researchers believe could again dam the Russell Fjord from Disenchantment Bay waters.

Once dammed, the fear is that rising water in the Russell Fjord-turned-lake would spill into the Situk River, eliminating multiple season's worth of fishing and drastically changing the habitat available to fish, said George Kalli, a civil engineer for the Alaska District and technical leader of the Hubbard Study.

The Alaska District was first asked to study Hubbard Glacier as an emergency response management request from the governor in February 2004.

After the general investigation, researchers completed a reconnaissance report in 2005 to determine the feasibility of flood damage reduction alternatives. The Corps looked at

digging channels at one of three different locations to divert water away from the river, drilling a tunnel through Gilbert Point—the land that meets the glacier to form the dam—or using explosives to break up the glacier.

“I didn't put much thought into blowing it up since it is in a national park,” Kalli said. “Drilling a hole was too expensive and might not hold up. Any river you could divert the water to would be overwhelmed. The way to solve this is not through a feat of engineering.”

USGS reported that Hubbard retreated 38 miles between 1130 A.D. and the late 1800s, and was retreating during the Little Ice Age when most glaciers were growing. Since 1895, it has been growing at a rate of about 80 feet per year.

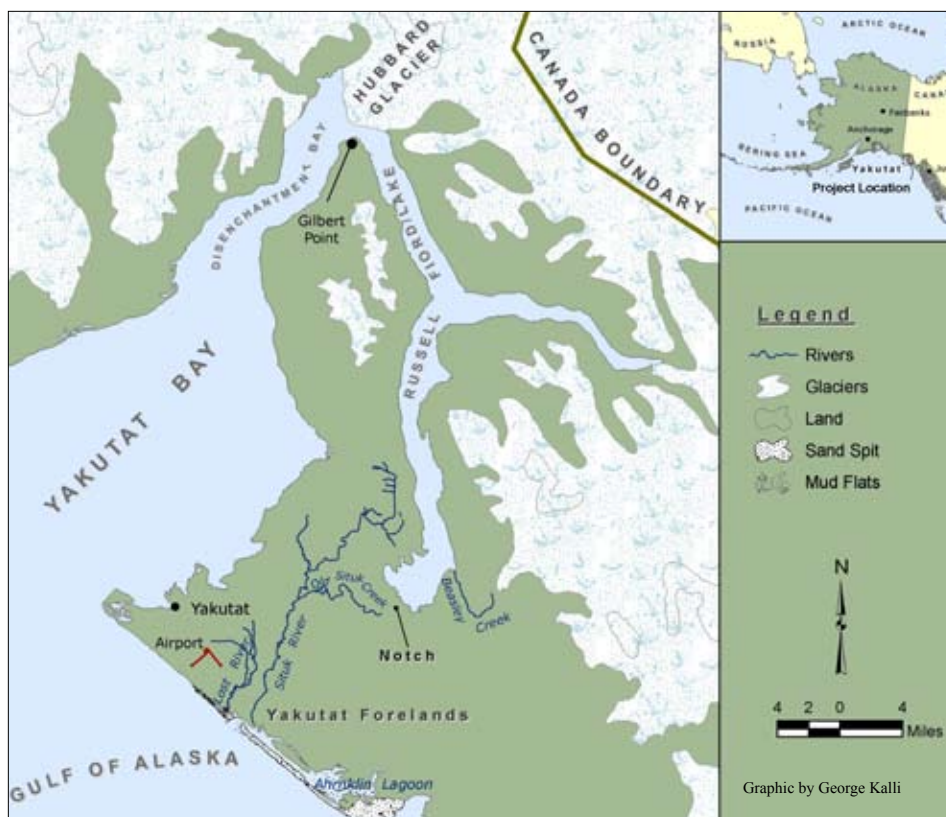
Evidence suggests that the river was flooded in the mid to late-1800s, according to Kalli, but there was no economic interest then to cause any concern.

In recent years, Russell Lake was formed in 1986 and 2002 when the glacier created a dam at Gilbert Point. Russell Lake rose to 83 feet above sea level in 1986 and 49 feet above sea level in 2002. Both times the dam broke before rising water from rain and melting snow and ice could rise to a point, estimated at 132 feet, of flooding the Situk River.

With knowledge that a dam had recently formed twice, citizens of Yakutat had reason to be worried.

“People were resistant to our recommendations,” said Kalli. “They were upset we couldn't take drastic measures, but funds would be competing on a national scale, with emergencies such as (Hurricane Katrina relief). With the recognition that the town itself is safe and nobody's homes are at stake, this was something that the people of Yakutat had to be made aware of.”

Situk River is one of the most productive rivers in southeast Alaska, according to the Alaska Department of Fish and Game. It is world-renowned for recreational steelhead trout fishing, and has all five species of salmon, Dolly Varden Char, cutthroat trout and eulachon harvested for subsistence,





**Hubbard Glacier is one of eight calving glaciers in Alaska that are increasing in mass and advancing. It is the longest tidewater glacier in America, according to the U.S. Geological Survey (USGS) These overviews show where the glacier could again meet Gilbert Point, causing the Russell Fjord to turn into a lake. If the dam remains in place, rising lake water could flood the nearby Situk River and harm the local economy. (Photos by George Kalli)**



recreation or commercial sales.

“Trees, rocks and sediment would wash away with the enlarged river if the dam is steady,” Kalli said, adding that only a few buildings would be affected. “It’s hard to predict when it would flood after blockage. Eight months is a guess to get flooded down at the river, so the ice dam would have to stay stable that long, and it could always break.”

To accurately monitor the glacier’s movement, a collaborative effort involving Alaska District staff, scientists from the Corps Cold Regions Research and Engineering Laboratory and the New England District, along with assistance provided by the Yakutat Ranger District of the Tongass National Forest, set up in 2007 a high-precision automated range finder across from the glacier to monitor the advance and retreat cycles.

Before the solar and wind-powered range finder was in place, researchers

had to observe and estimate the change by boat, airplane or satellite imagery, none of which was reliable or accurate, according to Kalli.

“This device gives a consistent means to measure that gap,” he said. “(The glacier) advances and pulls back historically. The data is telling us what we were told anecdotally. It’s reached 120 meters, close enough that there was concern it might close off, but then it had a very dramatic drop-off.”

With the monitoring data, available at [www.glacierresearch.com](http://www.glacierresearch.com), researchers have a basis from which to enact contingency plans, understand how the glacier moves seasonally and see how weather affects it.

“It eliminates an element of the unknown,” Kalli said.

For emergency response, researchers are using hydrology and erosion models to better predict flooding models, and then use that information for

contingency plans. “If the lake reaches a certain elevation or trigger point, then we need to enact certain measures,” Kalli said.

Besides the Situk River, it’s possible that a portion of the Yakutat Airport could be flooded. In partnership with the Alaska Department of Transportation, the Alaska District is working to get resources needed to protect the airport, such as funds to construct a levee.

While the glacier activity is under watch, the plan is to pursue more scientific studies of the glacier, the ocean in front of it and the ocean floor. In a twist from the usual, the Alaska District also is conducting an economic study to examine a new watershed approach to diversify the Yakutat economy.

“We’re looking at the area to see how to make fishing easier in different locations and what infrastructure is needed to make that possible,” Kalli said.

Water washing away Alaskan shoreline is a widespread problem that has worsened in recent years because of climate change. Alaska District is doing what it can to assist affected communities facing...

# Tough options

Story by Curt Biberdorf

As erosion threatens to erase Alaskan communities, the U.S. Army Corps of Engineers-Alaska District is examining solutions to a problem complicated by natural, social, political and economic factors.

Studies are under way to look at the effects of erosion along coasts and rivers, gather field data, define appropriate solutions, and develop construction documents and agreements for construction.

Some villages are getting emergency fortification. In one case, the district is assisting an entire town in its decision to relocate.

"The dilemma is that it's a widespread problem, and it takes a lot of money to solve it," Steve Boardman, chief of Civil Project Management Branch at the Alaska District, said. "We got a Band-Aid, but we need major surgery."

Because a main form of transportation is by river or sea, a large percentage of the Alaskan population lives close to the water, and native communities depend on it for subsistence. Erosion has occurred here for as long as moving water has collided with land, but it was managed by communities and individuals moving themselves to higher ground.

What's changed in the past century, Boardman said, is that Native Alaskan villages are now anchored to one spot because the political culture says that the children in these communities need to be educated, and that brought with it permanent school buildings along with support facilities.

"These capital costs make it very difficult to move," Boardman said.

Meanwhile, increased global temperatures in recent years are melting polar ice caps and reducing the amount of time ice can protect shoreline from water-surfing and wave-battering storms. Construction is also contributing to the disintegration of permanently-frozen soil known as

permafrost.

Documentation of erosion in Alaskan communities goes back decades.

In the mid-1970s, the Alaska District published a manual on how to build an erosion-control project and then constructed two low-cost erosion projects. In 1982, a consulting agency prepared a report for the Alaska Department of Community and Regional Affairs and published an educational manual for those affected by erosion. Two years later, the Alaska Department of Transportation and Public Facilities published its own report on erosion control.

The Alaska District constructed a few small erosion-control projects at Metlakatla, Deering, Emmonak and Bethel in the 1980s and 1990s. The district also became involved with the erosion problem at Kivalina—among the most severely affected villages—in the late 1990s and published the "Community Improvement Feasibility

Report" in April 1998 that investigated relocation possibilities, according to Larry Scudder, Civil Works project formulator.

The Alaska District followed up with a plan to relocate Kivalina in December 2001, and released a report in October 2003 discussing village requirements, facility and building inventories, major stakeholders and resource identification.

Kivalina is only one of dozens of villages at risk.

The U.S. Government Accountability Office conducted a study and produced a report in 2004 identifying 184 out of 213 Native Alaskan villages that experience some level of flooding or erosion.

"Alaska District was directed by Congress to conduct a baseline assessment that would coordinate, plan and prioritize appropriate responses to erosion issues in Alaska villages," said Bruce Sexauer, Civil Works senior project formulator.

Meanwhile, in coordination with several stakeholders, the Corps identified 181 communities that have some sort of erosion issue that requires investigation. A final assessment is expected to be published in late 2008.

"The Alaska Baseline Erosion Study is investigating each of these communities and is developing information papers and assessments that will help decision-makers prioritize which communities need attention next," Sexauer said.

Conducted under the Alaska Village Erosion Technical Assistance Program and funded through the Alaska Village Tribal Partnership Program in 2004, a technical analysis study in 2006 found that Kivalina, Newtok and Shishmaref are highest priority for attention: Each has 10 to 15 years before erosion impacts critical infrastructure, and the cost to move each village would range from \$80 million to \$200 million.

The district is also working with



Courtesy photo

**Eroded shoreline in the village of Shishmaref is causing buildings to fall into the ocean.**





Courtesy photo

**Waves crash into the shoreline of Kivalina during a storm Oct. 15, 2006. Many residents evacuated the village during a storm in mid-September of this year.**

the Denali Commission—a federal-state partnership designed to provide critical utilities, infrastructure, and economic support throughout Alaska—on topics such as water and wastewater treatment, solid waste handling, marine transportation development, as well as emergency erosion control.

Boardman said one of the bigger challenges in Alaska, unlike in the Lower 48, is the lack of information and engineering data that is essential to developing the most effective and efficient solutions now and many years into the future. Alaska's remoteness

also increases cost and complexity.

"Projects in the Lower 48 are typically accessible by roads and are close enough to material sources to make transportation of equipment and material relatively easy," he said.

Furthermore, hurricanes and tropical storms in the southeastern United States have put extra pressure on the government to protect populations living in those states. Alaska is competing with these locations for federal money to fund erosion studies and projects.

The hardest hit Alaskan villages

are faced with two options: protect the shoreline or move to another location.

In Shishmaref, the district awarded a contract in 2007 to build 625 linear feet of rock revetment in addition to three revetments already in place for erosion protection. Boardman said another 1,000 linear feet are needed to protect the village for an expected life of 15 years. To meet the standard 50 to 100-year life expectancy of a project, the Corps is caught with engineering data problems of what size rock is needed to fortify the shore and then how to get the material in Alaska.

"You're caught with the decision, 'Is it better to protect or move?'" Boardman said.

He said the grand challenge in relocation is getting the funding and finding the right sequence of steps to building a new village. If one agency were authorized to take the lead, then it could allocate the resources to the appropriate contractors or agencies in the proper sequence.

Then there are the questions of where and how to relocate.

"These communities have a long history and traditional way of life. It would be culture shock if we moved them hundreds of miles away with another community," Boardman said. "Newtok residents have taken it upon themselves to move, but other towns are undecided and may not move."

Regardless, the Corps will continue to work with the state and communities on a dilemma that won't soon go away.



Courtesy photo

**An excavator reinforces an existing rock revetment to slow erosion at Shishmaref. The district awarded a contract in 2007 to build 625 linear feet of rock revetment in addition to three revetments already in place for erosion protection. Another 1,000 linear feet are needed to protect the village for an expected life of 15 years.**



Courtesy photo

Dean Homleid, Eielson program manager, speaks before a crowd at an opening ceremony for a new school in Afghanistan.

# ***Around Afghanistan***

## Program manager extends deployment to finish important projects

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**By Curt Biberdorf**  
Editor

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Opening ceremonies, one with a goat slaughtered by village elders for their American guests, were among the highlights of a six-month deployment turned two-year adventure in Afghanistan for Dean Homleid.

Homleid, Eielson program manager for the Alaska District, volunteered to serve in Afghanistan in October 2005 and traveled across the Taliban-liberated country as head of the Building Facilities Group for the U.S. Agency for International Development (USAID-Afghanistan).

The U.S. Army Corps of Engineers has provided engineering support to USAID since 2004 through a Participating Agency Support Agreement. Afghanistan Engineer District (AED) has nine engineers embedded in the USAID Office of Infrastructure, Engineering and Energy, and provides additional engineering

and contracting support from the AED. These engineers help USAID manage its road, power and social sector construction programs.

Homleid said most of his work involved managing USAID's construction program to build or refurbish health and education facilities. From the start of the program in May 2004 to July 2007, his group oversaw the construction or refurbishment of more than 670 schools and clinics in villages throughout the country. Average completion rate for the program was 25 sites per month.

"That's not bad considering the remote geography of Afghanistan, the fluid security situation and relatively unskilled work force," Homleid said.

That program is now complete, and USAID has awarded \$80 million in new construction programs to build schools in Kabul, along with teacher education colleges, hospitals and midwife training centers in 21 provincial capitals

In support of USAID, the Corps

of Engineers has managed the refurbishment of several schools and clinics in Nangahar and Laghman provinces, and next spring, AED will again be supporting USAID in implementing the construction of 20-classroom teacher education buildings at 16 university campuses across Afghanistan.

"The USAID and AED partnership typifies the broad political, social and economic approach the United States is employing to bring stability, security and reconstruction to Afghanistan," said Jane Mergler with USAID's Office of Infrastructure, Energy and Engineering. "It is a partnership reinforced by Lt. Gen. Robert Van Antwerp's (U.S. Army Chief of Engineers) recent visit with Henrietta Fore, acting administrator of the USAID, in Washington, D.C."

During his deployment, Homleid saw access to healthcare rise from 8 to 82 percent and infant mortality decline by 22 percent. Girls are attending school for the first time where it would have

been impossible during the Taliban regime, and with the new Kabul Schools Program, more than 40,000 children will move from studying under tents and trees into safe purpose-built school buildings.

A native of Cincinnati, Ohio, Homleid's first job with the Corps was as a student hire at the Albuquerque District in May 1994 while working on his Master of Architecture degree at the University of New Mexico. Not long after completing his thesis in June 1996, he accepted a position in the Architecture Section of Alaska District under the Department of the Army Intern Program. In May 2000, Dean accepted a promotion to work in program management.

"I came to Alaska because of the opportunity presented by the DA Intern program and because Alaska is just so awesome," he said.

He said he originally volunteered for a six-month tour to Afghanistan for a change of pace and chance to work overseas, but he ended up extending mainly because he was having fun on the job and didn't want to leave some major programs unfinished.

He's traveled to dozens of villages in 28 out of Afghanistan's 34 provinces, inspecting schools and clinics and conducting opening ceremonies.

"Once, I went to a clinic for a routine final inspection, and when we arrived, there must have been 2,000 people waiting," Homleid said. "When we got off the helicopter, a couple of elders slaughtered a goat for us, and then we all gave speeches. I'll remember that one for a long time."

He said he enjoys working with the Afghans, who are easy-going and hospitable people.

"The Afghan engineers I've worked with have a lot of common sense and decent academic training, but they lack hands-on experience," Homleid said. "Capacity building is a big part of the mission here so that one day they can do all this (reconstruction of the country) for themselves. We're not quite there yet."

While the Afghan engineers brought an understanding of the culture and how that fits into engineering and getting the work done, Homleid passed along helpful practices from the Corps of Engineers on developing quality assurance and project management plans.

"(Those) I think will pay off in the long run, but hopefully they learned from me how to sort the big stuff

from the little stuff and how to make decisions day to day by keeping the big picture in mind," Homleid said.

Homleid recommends a deployment as a chance to do something completely different, experience a new culture, work with people from around the world and make a positive difference

in people's lives.

"Deployment to Afghanistan will be a great experience if you come with the right frame of mind," he said. "It really comes down to each person's tolerance to be away from family and friends and also their appetite for a once-in-a-lifetime experience."



**Dean Homleid, Eielson program manager, traveled to dozens of villages in 28 out of Afghanistan's 34 provinces, inspecting schools and clinics and conducting opening ceremonies. (Photo by Jane Mergler)**

**Afghani children have benefited from the refurbished Ulwani Khord School, Sari Pul Province. Through the Kabul Schools Program, more than 40,000 children will move from studying under tents and trees into safe purpose-built school buildings. (Photo courtesy of U.S. Agency for International Development)**



# Eielson hydrant fuels force

By Curt Biberdorf  
Editor

Aircraft at Eielson Air Force Base are filling up in a nearly seamless process from a Type III hydrant fueling system and ramp project that meets the new Air Force standard for ground refueling.

The nearly \$41 million project managed by the U.S. Army Corps of Engineers-Alaska District and constructed by Garco Construction Inc. replaced an almost 50-year-old Type I fueling system and was completed two months ahead of schedule in September 2006.

During Eielson's Red Flag training exercise in April 2007, the system's first practical application proved successful by dispensing 700,000 gallons of JP-8 fuel to B-1 and KC-135 airplanes in a single day.

"We haven't heard any complaints. There were no significant warranty problems," said Jay Klaassen, Eielson project engineer. "It performed as designed and the user was happy with the capacity it had."

He said the project was driven by the need to modernize to better support Red Flag exercises, be compatible with today's larger, heavier aircraft and help the environment.



Courtesy photo

**Workers lay in underground piping. Consistent grading is essential to avoid unwanted high and low points.**



Courtesy photo

**Bomber and refueler aircraft park at the 16-outlet hydrant fueling system at Eielson Air Force Base. The system provides a faster and safer way to deliver fuel.**

Three Type I hydrant fueling systems were demolished, which consisted of three pump houses, nine underground storage tanks, fuel piping and pits. They were replaced with 16 hydrant outlets, two above-ground 10,000-barrel capacity storage tanks, a pump house, two-position truck fill stand, hydrant servicing vehicle checkout facility, pantograph storage facility and an emergency generator. The ramp portion of the project consisted of a concrete apron with 16 parking positions for C-17 aircraft, taxiways, security lighting, taxiway edge lighting, striping and miscellaneous repairs of existing taxiways.

"(The project) eliminates a couple of environmental problems from the leaking underground tanks and leaky piping contributing to a fuel plume," Klaassen said. "It's also a faster and safer way to deliver fuel. Think of it as 16 pumps at a gas station."

In addition to a leaking pump house, the old fuel system limited the area for parking. With modern aircraft increasing in size and capacity, the new ramp constructed in conjunction with the hydrant fuel system was elevated 6 feet to create more space. All fuel outlets are recessed into the ramp.

"Just driving by, you wouldn't know it's a fueling station," Klaassen said.

The pump house delivers fuel under pressure to the ramp and is capable of dispensing up to 2,400 gallons per minute. Type III hydrant fueling systems typically include 8,000-10,000 feet of

welded pipe and five 125 horsepower pumps that deliver up to 600 gallons per minute, automated controls and instrumentation. The system also improves fuel quality through modern storage facilities, oil-water separators and filters.

Tanker trucks are gone at Eielson, replaced with a vehicle that transports pantographs—fuel-metering hoses—that connect to the ramp port for rapid fueling and de-fueling.

"The beauty of this is that because it is a pressurized system, they don't need a (tanker) truck or powering system," Klaassen said.

Fuel comes from a bulk fuel storage yard on base directly linked to a local refinery that receives crude oil via the Trans Alaska Pipeline System. With no trucks or railroad tank cars involved, capacity is limited only by how much the refinery delivers, Klaassen said.

Eielson's project finished with good results after taking into account lessons learned from hydrant fuel systems constructed at Hickam Air Force Base, Hawaii, and at Elmendorf Air Force Base, Alaska.

Klaassen said the district learned that consistent grading of underground piping to avoid unwanted high and low points, and proper weld joints are extremely important. It's also important to use fuel during testing after the system passes the pneumatic leak test. Extra contaminants in these systems accelerate clogging of filters and the need to change them.

# ACTIVE IN ALASKA



Frank Lum, mechanical engineer, along with his son, Ikaika, hold a halibut caught in Homer.



Melanie Harrop, project manager, paddles her kayak in the 2007 Yukon River Quest, a 460-mile canoe and kayak race on the Yukon River.



Greg Vanagel, assistant district counsel, pauses before descending a black diamond run while downhill skiing in Girdwood.



Nathan Machacek, lead construction representative, rides his snowmachine and hunts ptarmigan at Butte Creek.



Phil Santerre, deputy district counsel, stands next to his airplane after finishing a hike near Knik Glacier.



Lt. Col. Chris Benson, deputy commander, shows the caribou he shot during a hunting trip about 80 miles south of Prudhoe Bay.



Tom May, program manager, and his wife, Sue, take in the sights at Denali National Park using their road lottery pass.

# Berries cover Alaskan mountainsides

Story and photos by Curt Biberdorf

**I**t's possible to spend an entire day picking berries in Alaska and still leave plenty for the bears.

Smaller but tastier than their tame counterparts, wild blueberries hanging from low bushes on the mountainsides in various parts of Alaska attract berry pickers from late summer to early fall.

The Health and Wellness Committee for the U.S. Army Corps of Engineers-Alaska District organized a morning of berry-picking Aug. 25 at the Arctic Valley Trailhead in Chugach State Park, one of the better-known sites in the Anchorage area. They walked the slopes, seeking ripe berries to include in recipes or consume as a snack in itself.

"It's just another thing you can do in Alaska, especially in weather like this," said Kelly Drake, a finance specialist with Resource Management.

Drake is on the Health and Wellness outdoor subcommittee along with Melanie Harrop, who led a group of seven employees and family members to the berry patch.

"Blueberries are very expensive, and this is a good way to get them for free," Harrop said, a quality management assistant and project manager for Civil Works. "The only bad part is the time it takes to pick berries, but that's part of the fun."

Unlike fishing or hunting, no special



Anita Dale, contracting specialist, (front left) and Kelly Drake, finance specialist, (front right) lead a group of Alaska District employees to the berry-picking site at Arctic Valley near Anchorage Aug. 25.

tools or techniques to harvest the bounty are necessary although a berry-picking rake can help speed the process. Fruit picking also doesn't require any licenses or tags. Besides a small parking fee at Arctic Valley, a container, eager hands and an area full of berries were enough to bring home the fruits of their labor.

Arctic Valley Trailhead is adjacent to the Alpenglow Ski Area, which starts at 2,400 feet at the base and rises to a 3,900-

foot summit. The scenic mountain bowl has miles of hiking trails and is covered with wild blueberries and crowberries, as well as other varieties, in bushes at ground level up to 2 feet high.

"I wasn't even sure what a blueberry bush looked like," said Anita Dale, a contract specialist, on her first time berry picking. "I'm glad Melanie organizes these events out here because I'm not sure I'd be motivated to do these things on my own."

Getting there is as simple as driving the Glenn Highway north from Anchorage to the Arctic Valley exit and following the road 7 miles to the end. From Eagle River and the Matanuska-Susitna Valley, take the Fort Richardson



Melanie Harrop, a quality management assistant and project manager for Civil Works, shows the group of berry pickers a wild blueberry and also explains the other types of berries they may encounter.



Wild blueberries mingle with crowberries, another edible wildberry in Alaska.



**(From left to right) Kelly Drake, Anita Dale, Darilyn Lum and Melanie Harrop search for patches of blueberries on the lower part of a mountainside at Arctic Valley by the Alpenglow Ski Area.**

exit and turn left. Follow the frontage road to Arctic Valley Road.

On Fort Richardson Military Reservation, the first mile is a straightaway past green lawns on both sides of the road, including the driving range for Moose Run Golf Course. Then the road starts climbing and the pavement ends, becoming a wide and at times winding gravel and packed dirt road. Within a few miles, it's possible to look down on downtown Anchorage and across the Inlet to the Mat-Su Valley. Ship Creek flows through the bottom of the valley to the west and steep mountainsides enclose the road on the east.

Wild berry picking is regarded as one of Alaskans' favorite pastimes, according to the Anchorage Convention and Visitors Bureau. It's part of subsistence living that plays an important role in Alaska Native culture and has been a mainstay of the traditional diet for centuries.

Besides blueberries, other berries such as crowberries, salmonberries, cranberries and raspberries are common and popular among the 50 types of berries found in Alaska, most of which are edible. All white berries are poisonous.

Blueberries can be part of a healthy diet. They are high in vitamin C,

niacin, manganese, carbohydrates and fiber while containing little sodium or fat. Rich in antioxidants, blueberries are reported to have beneficial and preventive effects on cancer and heart disease.

Berry patches on southwest-facing slopes that are protected from the wind are known as the best places for picking. Higher elevations in general produce sweeter berries, and blueberries become nearly black when they are ripe.

Flattop Mountain Trail, South Fork Valley Trail, Peters Creek Trail, Eklutna Lakeside Trail and Mount Alyeska are other public lands where berry-picking is available. The Alaska Public Lands Information Center in downtown Anchorage has a map of local picking spots.

Harrop recommends against washing blueberries before freezing them. Stored in containers or plastic bags, they last through the winter.



**A salmonberry, a close relative of the raspberry, rests on top of a container full of blueberries. Of the available wildberries, blueberries are the most popular.**



## ***District flashback***

Surveyors with the U.S. Army Corps of Engineers capture data for lowering the grade in a steep section of the upper access road during work on the Snettisham Hydroelectric Project. Located nearly 30 miles south of Juneau, Alaska, the project was designed to provide the city power grid with plentiful power for a projected service life of at least 100 years. The first stage was completed in 1973. A second stage completed in 1990 added generating capacity. Many employees regarded its construction as a huge achievement, and it became nationally recognized as a major engineering accomplishment.

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