

Unalaska Upgrades for Dutch Harbor Fishing Fleet

Carl E. Moses Boat Harbor adds needed infrastructure

BY GAIL WEST



Photo courtesy of John Fulton

Fabricated float modules staged in Anacortes, Wash., awaiting transport to Dutch Harbor for Carl E. Moses Harbor project. Float construction consists of 48-inch-diameter steel-pipe pontoons supporting a tubular-steel frame with steel-grating deck.

Alaska's commercial fishing fleet faces some of the most rugged weather in the world, often battling up to 60-knot winds and 30-foot waves in the waters of the Aleutian chain. Unalaska offers respite to many of the vessels at its harbor – Dutch Harbor. Unalaska, itself, ranks second on the list of the top 101 cities with the highest average wind speeds, and boasts about 250 days of

rain each year. Construction, in this environment, is challenging enough. However, the city and its contractors have recently taken on an even more challenging project: the Carl E. Moses Boat Harbor.

Consisting of an inner harbor, uplands improvements, a new rubble-mound breakwater, floating breakwaters and basin dredging, the new harbor will support the Bering

Sea and Aleutian Islands fishing fleets, according to John Fulton, Unalaska's assistant city manager. A previous project under the U.S. Army Corps of Engineers, for approximately \$26 million, has already completed the dredging and the rubble-mound breakwaters, and will be installing the floating breakwaters this summer. A design/build team of Pacific Pile & Marine and PND Engineers Inc. are

preparing to build the inner harbor floats and the uplands facilities.

LONG-TIME COMING

"This project has been in the works for about 15 years," Fulton said. "We have more boats than we have dock space. Our harbor now is designed for about 75 boats. With the pollock, crab, cod and halibut fleets, we have at least double that number that use the port. In addition to the city's funding, we've been able to pull together some federal funding and a State grant, along with a reimbursable bond through the State, to fund this project. The inner harbor is right at \$30 million and the floating breakwaters are about \$11.5 million. Then we have to build an access road and utilities for about \$11.6 million, and we had to purchase some uplands for the project at \$2 million.

"The State grant was the first money for this project, and it came through Rep. Carl Moses. That's why it carries his name," Fulton added.

"We currently have a linear dock and boats tie up in layers – rafting. In storms, that can sometimes cause

damage," said Tyler Zimmerman, Unalaska's city engineer. "There's also an increased chance for oil or fuel spills because of the rafting of these vessels. The new facilities also will save the fleet time and fuel – they won't need to make the trip to Seattle for repairs or supplies. That's about a seven- to 14-day trip for them and takes anywhere from 15,000 to 30,000 gallons of fuel each way. We'll have all the services they need here."

MAINTENANCE FACILITIES ADDED

According to Fulton, all commercial fishing vessels need regular maintenance.

"The Alaska locations, though," Fulton said, "run out of slips, so the fishermen have to go farther south to Seattle. Soon, we'll be able to keep those vessels here and keep more of the money and jobs in Alaska. The fleet is everything to the state and our whole economy in Unalaska. Without the fishing fleet, we wouldn't be here."

Unalaska contributes approximately 20 percent of the State Fisheries Business Tax and approximately

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Assistant City Manager

40 percent of the Marine Fuel Tax collected for the State coffers each year. In addition, Unalaska is responsible for nearly 85 percent of the Fisheries Landing Tax.

According to Pacific Pile's Alaska Division Manager Jason Davis, on-site construction of the inner-harbor infrastructure and the uplands support facilities was scheduled to begin in April and is slated for completion



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by November of this year. When completed, there will be about 55 slips for the big commercial vessels, more than 50 slips for boats in the 100- to 150-foot range and 14 slips for boats in the 60- to 90-foot range, he said.

"We chose a heavy-duty steel float design for the dock rather than concrete or timber because it provides the longest service life," Davis said. "It's the most durable design we have ever constructed."

Installation of the floats requires piling to be drilled and seated into bedrock, and, Davis says, socketing piles exceeding 140 feet in length is a very challenging operation in the Aleutian environment. "It makes a very competent foundation," he said.

CHALLENGING PROJECT

John DeMuth, senior engineer with PND, added that there are a number of challenges to this project, many presented by the site and topography.

"It's deep water that drops off quickly," he said, "so the floats have to be anchored with relatively long piles. The contractor will have to drill into

rock and the rock is sloping; the pile will want to walk down the rock slope."

Another challenge DeMuth added to the list was that everything is on a grand scale.

"We're talking about some of the worst weather in the world – high winds and extremely large boats. Some of those vessels run 130 to 200 feet, and they'll have to tie up to these floats," DeMuth said. "When you get high winds bearing on the vessel's sail area, it's going to take well-anchored floats to withstand those forces."

"We're also working in extra-deep water. Some of the piling will be going into 90 to 100 feet of water; and when you get a pile that long, it deflects a great deal. All the piles going into this project will be framed together across the top so they don't deflect as much when the vessels push on them. Because the float system will move so much, we had to design a connection for floats that's not rigid so the bolts don't shear, but that has the ability to flex and absorb energy. We are confident our design will work well."

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the harbor are "of a strength and durability beyond what we've done before. The pontoons are four-foot-diameter pipes with a frame on top of 12-inch-square steel tube. This is very industrial-grade stuff," he said. "We're not talking recreational boats here. You need a float system to hold up to the big vessels."

All of the floats will be equipped with fire suppressors, potable water and electrical service. To service the smaller fleet, a drive-down float for light vehicles, such as a pickup, and a dock crane to load or unload supplies will be incorporated into the dock.

CLIENT'S LONG-TERM VISION

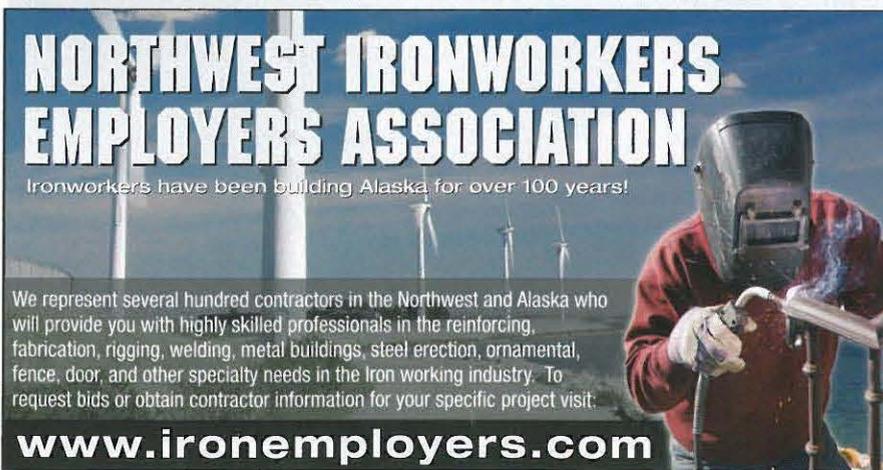
"One of the best things about this project," Davis said, "is that the client has had the vision to create a long-term facility. They raised the standards and performance criteria higher than you typically see. These floats will have a 50-year life span with minimal maintenance. This client recognized that by commissioning the best design and construction methods available, they will decrease the life-cycle cost and save money in the long run."

Davis and DeMuth both said the city and the project team have worked well together.

"A lot of times, owners don't recognize the importance of quality," Davis said. "They look at purchase cost rather than life-cycle cost. On this project, we've all made concessions and helped each other out. We'll have a project that we'll all be proud of." □



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