



Case Study

Glacier Fish Company

Stainless steel industrial computers
capture data at sea



noax IPCs on board the Alaska Ocean and Pacific Glacier:

Keeping Compliance and Quality Assurance Afloat on Bering Sea Fishing Factories

At-sea catcher processors owned by the Seattle based Glacier Fish Company labor through the icy waters of the Bering Sea in their quest for a share of fish from the schools of Pollock. These ships will process, freeze, and offload tons of

"Out on the ocean we cannot afford to have anything break."

fish throughout their six-month cruise. The catch will be served up in a range of cuisines, from fish sandwiches

and fish and chips at quick service restaurants to top quality Surimi served at sushi bars and in fine dining restaurants. Glacier Fish was one of the U.S.' first commercial fishing companies to produce frozen-at-sea Alaska Pollock. The company is now at an annual volume in excess of \$100 million, making Glacier the third largest at-sea harvester/processor of Alaska Pollock and West Coast Pacific Whiting. In addition to Fillets and Surimi, a minced fish protein made from Alaska Pollock and Pacific Whiting, the company is also a provider of Alaska Pollock Roe (Eggs), a much prized item in Japan and South Korea.

Making sure there is fish in their future

Glacier Fish Company along with the rest of the Alaska Pollock industry wisely realized that the continued success of the fishery hinged on keeping the Alaska Pollock resource healthy. The end game was to avoid what has happened in other fisheries worldwide when they became overfished. To ensure a sustainable fish population for years to come, these far-sighted companies formed the Pollock Conservation Cooperative (PCC) in 1999. The PCC created a private contractual agreement among eligible companies apportioning individual shares of the U.S. Government awarded catcher/processor allocation. As such,

the Alaska Pollock fishery is closely monitored by the U.S. government. The U.S. Coast Guard and NOAA Fisheries enforcement agents (NMFS) patrol the fishing grounds and regularly board vessels to conduct inspections. In addition, all Alaska Pollock catcher/processors carry two federal fishery observers on board at all times whose job it is to monitor the catch volumes of both the target species and by catch species. 100% of all landings by Alaska Pollock catcher/processors are observed. The results of the NMFS observer reports are then used by Federal agencies to help determine the "Total Allowable Catch" (TAC) for the following year. The environment on these fishing trawlers is demanding and grueling. Once the catch is landed on board the processing begins and continues while the vessel immediately sets sail for the next fishing

grounds. With the ship heaving back and forth as it struggles through the waves, the crew is hard at work processing the catch. Processing systems and other equipment throughout the processing facility are constructed from stainless steel materials to withstand the corrosive high pressure spray of salt water mixed with cleaning solutions that are used to clean the production area. "Tracking the catch in the factory against Glacier's share of the TAC," according to Glacier Technology Manager Jonathan Lockwood, "used to be accomplished using clipboards and Excel spreadsheets. This method of tracking was time-consuming and rife with errors so a few years ago we turned to computers." But Glacier's initial experience with PCs in the fast pace of the facilities operations was also not satisfactory. Two out of the three computers first acquired



noax IPC receives product data that is imprinted on the side of the box

The success of the Glacier Fish Company business depends upon their ability to produce top quality products from robust North Pacific fishery resources. On board Glacier Fish Company's fleet of floating fish processing factories, sea-worthy noax industrial computers enable them to accurately track their catch and maintain product quality while capturing and managing operational data.

Even miles away the Headquarters can check the operation from the catch till the plate in real-time



failed almost immediately out of the box. "Out on the ocean," notes Lockwood, "we cannot afford to have anything break and we also cannot staff an IT Technician on board for 6 months just in case one of the many critical computers fails." Lockwood did not give up on the idea of using industrial computers and he launched a web search for more reliable PCs. "Based on our former solutions and from what we saw on the website and on their interactive online presentation," recalls Lockwood, "noax looked like a perfect fit."

Efficient process is guaranteed

The noax touch screen computers play a big role throughout the processing facility. After the fish goes through one of several filleting machines the product must pass rapidly over one of the many packing scales. The noax 12" stainless steel PCs (S12) are connected to the scale heads via a RS232 or an Ethernet connection to accurately capture the fish portion grades and weights; then, to communicate the data to their server. The operators see as many as 6000+ baskets of fishery products passing over a scale in a day, and with the S12, workers are able to accurately portion, weigh and grade each basket without slowing the production process. The fish is filleted based on size, sent to the packing station and frozen into blocks. From there the product goes to case-up and then to the printer. An operator enters product data on a noax 15" touch screen that is imprinted on the side of the case. Information includes product name, product grade, day code and vessel information. The 15" and 19" computer noax manufactures have 20 freely-programmable function keys on the front bezel to enable fast and secure data entry. This is a benefit especially since the international crew is multilingual so everything the crew needs to enter can be done with a single button. Glacier set up large color coded buttons on the touch screen so that the operator can easily shift from one product grade to another and the proper identification can be added to the case. For Surimi, the product arrives at the print station in a colored wrapper to facilitate fast, no-guesswork data entry for the operator. The on-site computers are wired to the on board Microsoft SQL server via the Ethernet. The ship's server replicates data to the server

in the Seattle office over 2000 miles away, enabling the headquarters staff to check the operation in real-time and see quickly if there is any slow down in the factory. Throughout the process, inspectors at the quality assurance station randomly select fillets and frozen blocks of fish off the production line to test and sample. They perform precise tests to be certain that the fillets, Surimi and frozen fish meet the exacting specifications of Glacier's customers in the global supply chain. "Here," notes Lockwood, "the large noax S19 enables the inspectors to do their entire QC report. They only need to select and depress an F-Key to access one of the predesigned reports."

"This translates to immense savings due to increased efficiency and reductions in customer product claims".

Why is noax the perfect fit?

The noax computers are ideal for use in the factories' tough environment on Glacier's vessels. "I've looked at the other types of computers and found that the noax units offer much more by having multiple RS232 hookups, two PCI slots on even the smaller units, function keys on their larger units, thicker stainless steel cases, and better quality, not to mention touch screens that can take a 500-psi direct water blast." Along with enabling management to obtain an accurate tally of the catch, the noax computers are cased in tightly sealed, NEMA 4 or 6 rated rugged stainless housings that can operate reliably in these damp, cramped quarters and stand up to the high pressure wash down streams. Internally the noax computers have no cables, have durable all-in-one motherboards developed in-house by noax, have an automotive hard drive that is shock/vibration resistant and use only industrial components from the Intel Embedded platform. All noax computers are backed up at least by a two-year warranty, with all service, support and parts available for up to ten years.

Catching fish and mistakes

"With the help of noax computers," remarks Lockwood, "we are building systems that make it possible to promptly find production mistakes or inefficiencies during the production process as opposed to weeks or even months later. This translates to immense savings due to increased efficiency and reductions in customer product claims." Lockwood credits the noax computers with being tremendous time savers for the factory manager, eliminating time spent recording and double checking the data. "Quite simply, you run your report and here's your production information. From the time the fish is harvested through every check point in the production facility we are adding to our data resolution."



Glacier Fish Company

Company Profile:

Glacier Fish Company was founded by a small group of Seattle-area fishing families in 1982 and since then has been under the continuous management of its founding partner and current CEO Erik Breivik. Their objective is to produce the highest quality frozen-at-sea ground-fish products available on board their fleet of floating fishing factories. Their largest and most sophisticated vessel is the recently acquired Alaska Ocean at 376 feet long. This company generates annual revenues of more than \$100 million. It is the third-largest at-sea processor in the industry with more than 400 employees. Glacier provides fish to more than 15 major processors world-wide, attracting and maintaining this business by setting industry standards for harvesting and processing technology. As part of the Pollock Conservation Cooperative, Glacier is working with other fish harvesters to prevent over-fishing. Through this joint effort, the fish stocks will be available today, tomorrow, and into the future.

Specifications and Application

Objectives:

- ✓ Accurate recording of the aggregate weight of fish caught using real-time communications and data collection
- ✓ Precise quality control information to ensure traceability, product safety, and product quality
- ✓ Ability to communicate with different points within the processing factory and with the headquarters in Seattle
- ✓ Quick data entry in this fast-paced operation

IPC Requirements:

- ✓ Rugged, waterproof construction to withstand the rigors of this harsh, demanding environment that includes the continual rocking motion of the ship, exposure to high-pressure streams of salt water and chemicals, high humidity, and low temperatures within cramped quarters aboard a pitching ship
- ✓ High level of reliability to prevent stoppage of the operation
- ✓ Multiple RS232 connections to meet the need for multiple interfaces

Overview of Components

Hardware:

- Stainless Steel industrial PCs S12, S15G2, S19
- In-house developed noax All-in-one motherboard
- Input: particularly robust touchscreen
- Bright, high-contrast TFT display
- Protection class IP65 (NEMA 4) IP69K (NEMA 6)
- Completely sealed, no external fan

Software:

- Operating system: Microsoft Windows
- Application programs:
Developed by Glacier's processing system equipment supplier Marel

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Case Study arranged 2010

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