

Frozen Alaska Seafood Quality



Wild-caught seafood from Alaska is recognized the world over for its naturally unrivaled texture, diverse flavors, and dense nutrient content. This inherent high quality must be maintained from deck to dish, requiring complex supply chains and industry-best freezing methods to ensure the highest possible quality is delivered no matter where Alaska seafood is being served.

QUALITY FREEZING

Quality can only be lost or maintained once fish is out of the water, and there is nothing more important in maintaining quality than temperature control, which is why most seafood from Alaska is frozen. Alaska fish are 'fresh-frozen', meaning they are frozen rapidly after capture at the peak of quality. This quick turnaround ensures the fish has the same quality it would have had if eaten on the dock with the fishermen at landing, regardless of where in the world it is served.



FREEZING PROCESS

Commitment to quality begins the moment fish are brought on board, and lasts until it is delivered to the consumer:

Fish are harvested, either going to chill or beginning processing on-board the vessel.

CHILLING

Harvesters that don't process on board chill the fish on ice or chilled water and take them quickly to a processing center with time and temperature controls to maintain high quality.

PROCESSING

Either on vessels or in processors, fish are separated by species and broken down into products (fillets, clusters, etc) before moving to freezing (most shellfish are also pre-cooked).

FREEZING

Advanced flash-freezing methods freeze the fish in hours (sometimes minutes) rather than days.

GLAZING

After freezing, the fish is dipped in water which forms an ice glaze which protects it from freezer burn.

TRANSPORT

Once frozen, Alaska's established cold supply chain links all over the world, and the frozen fish is kept at a consistent temperature throughout its journey.

QUALITY BENEFITS OF FREEZING

By freezing seafood quickly after harvest, the flavor, texture, and nutrition inherent in the catch is able to be preserved.

• Prevent Drip Loss

Rapid freezing keeps the naturally high moisture content of the fish solid, and minimizes the size of ice crystals during freezing. This process minimizes the loss of juices vital to not only the taste of the fish, but which also carry the valuable nutritious compounds present.

• Reduce Lipid Oxidation

Hardening of the fish's cell membranes and oils by freezing prevents exposure of the fatty acids to oxygen, which minimizes the development of rancidity by oxidative stress.

• Minimize Microbial and Enzyme Activity

Freezing halts the growth of spoilage-causing microorganisms and greatly reduces the enzyme activity in the meat, preventing the meat from breaking down and spoiling.

FREEZING AND SUSTAINABILITY

Alaska's seafood harvest is carefully managed to ensure fish are utilized in a sustainable fashion. Though the specifics vary by both region and species, the well-being of the the marine ecosystem means that the fisheries themselves are usually only open during certain times of the year.

Freezing leads to an indefinite extension of shelf-life, meaning:

-  Wild Alaska fish harvested from seasonal fisheries are available year-round
-  A steady supply ensures price stability
-  No fish goes to waste

COMMON FREEZER TYPES:

Three different types of freezing technology are used for seafood. **Airflow**, **contact** units, and **brine** freezers. All methods rapidly freeze the fish to target temperatures to maintain the premium quality.

Airflow



3 types of airflow freezers are commonly used: tunnel, blast, and spiral airflow freezers. In each, refrigeration machinery pumps liquid to an evaporator made up of banks of finned tubing. Fans blow air through the fins and inside the tubing, refrigerant boils off, absorbing heat from the recirculating air. The cold air then heads off to collect more heat from the freezing product.

Contact (Vertical or Horizontal)



Commonly seen in plate freezers used for surimi, metal is formed into shelves/plates with internal channels to pass refrigerant, fed from flexible hoses, from one side of the plate to the other. Product (typically of predictable dimensions) is placed in or between the plates, and a press compresses the shelves/plates.

Brine



Commonly used with crab, brine freezers use either seawater or mix water with salt to create a "brine" solution which remains at a low temperature (around 0 degrees F or -18C) without freezing. Then, product is either immersed in or sprayed with the low temperature solution. This is often used for shellfish because delicate appendages remain intact.