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ARS researchers and their collaborators have developed a quicker way to freeze dry salmon that maintains color, rehydrates quickly and shrinks less, expanding options for adding seafood to the diet such as these salmon cubes. *Click the image for more information about it.*

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New Freeze-dry Method Good for Processing Fish

By [Sandra Avant](#)

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A quicker freeze-dry technique used to process salmon cubes could potentially be applied to add value to meat components considered to be less appealing, according to a [U.S. Department of Agriculture](#) (USDA) researcher.

The new freeze-dry method, which requires less energy and processing time, was developed by scientists at the [University of Alaska-Fairbanks](#) (UAF) in collaboration with [Peter Bechtel](#), a food technologist at the [Agricultural Research Service](#) (ARS) [Subarctic Agricultural Research Unit](#) (SARU) in Kodiak, Alaska. ARS is USDA's principal intramural scientific research agency.

One of the goals of the study was to set up a process that would produce freeze-dried cubes with less than 10 percent moisture, according to Chuck Crapo, seafood technology specialist with the [UAF Marine Advisory Program](#). This was achieved by manipulating temperature and time.

Scientists created a process that took only nine hours by raising the temperature from minus 40 degrees Fahrenheit to 32 degrees Fahrenheit. Traditional processing can take 20 hours or more.

The new method removed 97 percent of the moisture from fillets of Alaska's most abundantly harvested Pacific salmon species —pink, sockeye and chum. The freeze-dried salmon cubes maintained their original color, rehydrated quickly and shrank less in a shorter period of time than food processed by traditional freeze-drying.

Such products could offer healthful alternatives for less desirable portions of fish muscle, according to Bechtel. For example, when the salmon gets too close to spawning season, its muscle quality declines. Edible portions of the meat, which are then considered byproducts, could be freeze-dried.

Cubes made from salmon are rich in omega-3 fatty acids and could eventually offer a healthful option for people who want to increase seafood in their diets as recommended by the new Dietary Guidelines for Americans. Salmon cubes could be used to make tasty snacks, salad toppings and ready-to-eat soups.

Findings from this research were published in the [Journal of Food Science](#) in 2010.

[Read more](#) about this research in the August 2011 issue of *Agricultural Research* magazine.

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