

Years ago, bear researcher Charles Robbins noticed something strange in Alaska.

The Washington State University wildlife biology professor was studying bears during the fall, a time when the big ursines have essentially unlimited access to salmon. Salmon, a fish so dense in calories and nutrients that entire human cultures have congregated around the ocean-going species.

For the hibernation-preparing bears, the yearly fish bonanza is key to packing on the pounds to get through the long winter.

Yet despite all that abundance, Robbins noticed that the bears were spending upward of 8 hours per day eating berries and, during those times, totally ignoring the flopping fish.

"Salmon are just loaded with protein. Loaded with energy. A very complete diet. Whereas the berries are a very incomplete diet," Robbins said. "They were working their tails off (to get the berries) and it didn't make any sense to us."

That years-old field observation has culminated in a study published in Scientific Reports in September finding that bears of all stripes are not nearly as carnivorous as previously believed. Instead, when given the option, bears prefer a balanced diet. In fact, bears in captivity gained the most weight (a good health indicator in their case) when fed a combination of protein, fats and carbohydrates.

"Bears are not carnivores in the strictest sense like a cat where they consume a high-protein diet," Robbins said. "In zoos forever, whether it's polar bears, brown bears or sloth bears, the recommendation has been to feed them as if they are high-protein carnivores. When you do that, you kill them slowly."

He found that polar bears in zoos typically die about 10 years earlier than they should, most often of kidney and liver disease. These two diseases can develop from long-term inflammation of those organs, potentially caused by many years of poorly balanced diets.

Robbins, the founder of the WSU Bear Center, the only research institution in the U.S. with a captive population of grizzlies, has studied bear nutrition for decades. While his research didn't look directly at black bears, the most common bears in Eastern Washington and North Idaho, he said that when they are able, black bears eat a diet nearly identical to grizzlies (brown bears are **grizzly bears** that live in coastal regions of Alaska).

The research has clear implications for zoos, but it could also influence management of wild bears in the western United States, Robbins said. In most discussions about what wild bears need, salmon dominate the discourse. While salmon are certainly integral to a bear's diet, Robbins pointed out that his research shows that berries, particularly huckleberries are nearly as necessary.

"Salmon are super important," he said. "But it's just too much protein. They need to mix it with berries."

He would like to see the U.S. Forest Service more tightly control commercial huckleberry picking operations. Commercial huckleberry picking is not allowed on Forest Service land, but there is a shadowy industry which provides restaurants and stores gallons of huckleberries during the harvest season. Huckleberries have not been successfully farmed.

Viewed from a larger context, Robbins said his research shows that the "whole ecosystem needs to be managed."

"They have the knowledge necessary to make those decisions," he said of bear's dietary choices. "They have been evolving for 50 million years making these daily decisions. It just shows they know a great deal more than we knew at the time."

