

You Are What You Eat

How High on the Food Chain Are You?

This can be determined by a simple lab measurement! We have two mass spectrometers ready in the adjacent labs to analyze a tiny clipping from your fingernail for carbon and nitrogen isotope ratios. These ratios are indicators of the relative importance of fruits, vegetables, grains, marine fish, meat, cane sugar, corn products, and dairy in your diet.

If you would like to participate in this study, members of our group will help you clip one of your fingernails, assign you a sample number, analyze the sample, plot the results on the **middle figure** in the **ADJACENT POSTER**, and explain the meaning of your results.

It will take 10-60 minutes to analyze your sample, depending on our backlog of samples. Hence, we suggest you keep your sample number safe, go see other exhibits, and come back later to see your results.

These data will not tell you if your diet is good or bad. The isotope ratios simply reflect the influence of various types of food in your diet on your isotopic composition.

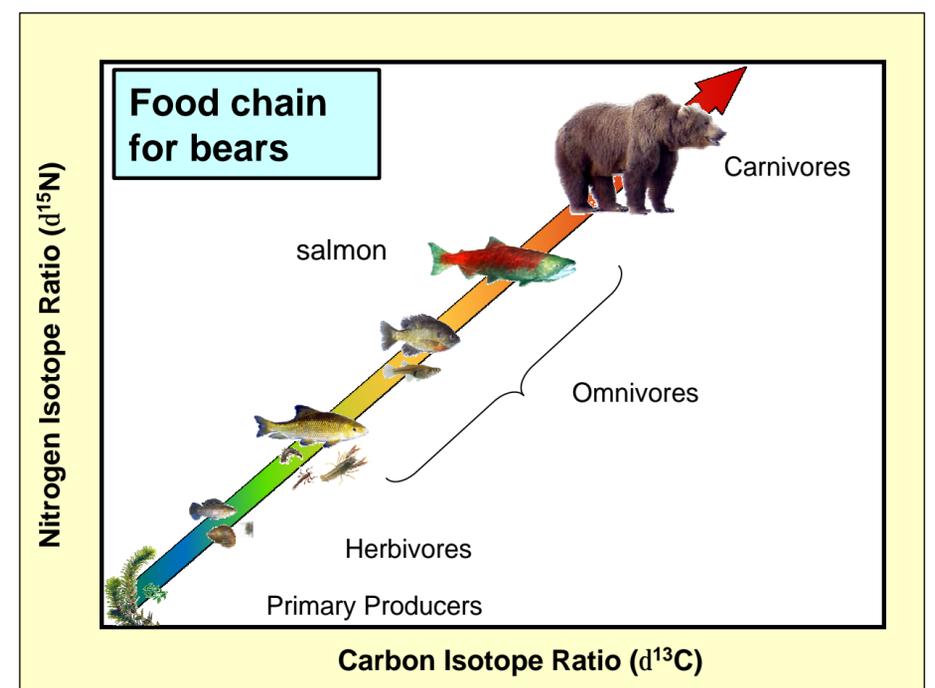
ADJACENT POSTER: The **left-hand figure** provides a brief explanation of how the isotopic composition of your fingernails reflects your diet. When the mass spectrometer analysis is done, the data for **YOUR FINGERNAIL** will be plotted on the **middle figure**, which is an enlargement of the “human” portion of left-most plot. The **right-hand figure** shows the isotopic compositions of fingernails of visitors to the Open House in 2000.

OTHER POSTERS: The **left-hand poster** across the hall provide more detailed information about isotopes, food webs, how mass spectrometers work, and how your samples are analyzed. The **right-hand poster** across the hall gives several examples of how food web data are used to understand ecological systems. The **poster on the wall between the lab doors** gives an example of how isotope data are being used to improve aquatic habitats in the Florida Everglades.



From Thomas D. Mangelsen's "Catch of the Day"

During the salmon migration season when the bear eats primarily salmon, it is 1 step higher on the **food chain** than the salmon. In other seasons when the bear eats mainly berries, the bear is lower on the **food chain** than salmon. Isotope ratios can be used to trace seasonal and spatial differences in diet.



This diagram shows the full **food chain** for bears during salmon season when the bears are carnivorous, starting with algae at the base of the salmon food chain. If a human eats the bear, then he/she is eating at 1 step higher in the **food chain** than the bear.