

NUTRITIONAL ANALYSIS OF FROZEN CANADIAN CAPELIN (*Mallotus villosus*), ATLANTIC HERRING (*Clupea harengus*), AND CANADIAN LAKE SMELT (*Osmerus mordax*) OVER A 9 MONTH PERIOD OF FROZEN STORAGE

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ABSTRACT

Freezer storage of fish is needed to preserve nutrients, but at the same time can result in degradation.¹⁻⁴ We investigated levels of vitamins A, B1, E, C, minerals (calcium (Ca), phosphorus (P), magnesium (Mg), sodium (Na), potassium (K), manganese (Mn), zinc (Zn), copper (Cu), chromium (Cr), molybdenum (Mo), nickel (Ni), selenium (Se), iodine (I)), and fatty acid composition in Canadian capelin (*Mallotus villosus*) and Canadian Lake Smelt (*Osmerus mordax*), over a period of 9 months in freezer storage. All tests, except minerals, were also run on Atlantic herring (*Clupea harengus*). One lot per fish species was analyzed, with blind samples collected over 3 sampling periods: one month after catch, and then subsequently 3 and 9 months after being stored at a constant temperature (-2°F, -18°C). Samples were submitted to NP Analytical Laboratories (St. Louis, MO) for analysis; a 24-hour thaw at 36-40°F (2.2-4.4°C) was performed prior to analysis to mimic usual practices before feeding marine mammals. Preliminary results showed that vitamins B1, C, and E and minerals I, Cu, Cr, Mo, Ni, Se) were present in negligible amounts at all sampling points. Fatty acid results when comparing initial and final 9 month sample showed that eicosapentaenoic acid and docosahexaenoic acid levels stayed consistent.

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