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NOAA FISHERIES
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2021 AFSC Seminar Series

Louise Copeman, AFSC RACE

Tuesday, April 20th @ 10 am Pacific

The importance of marine lipids in warming Arctic food webs: tales of juvenile fish and crab

The storage of high levels of marine lipid in arctic consumers is generally viewed as an adaptation to extreme seasonal environments that are characterized by long periods of reduced food availability. Lipids are the most efficient means of energy storage as they contain twice the energy per unit mass as other macronutrients. At the Marine Lipid Ecology Lab (FBE program, Newport, Oregon) we are using both laboratory and field-based approaches to understand how changing environmental conditions are impacting the condition of juvenile fish and crab. The analyses of consumer total lipids combined with storage lipid classes is a sensitive method for assessing animal condition. We combine this approach with the analysis of fatty acid biomarkers to help elucidate trophic mechanisms that drive changes in fish and crab condition. Two examples of this approach will be discussed featuring juvenile Chukchi Sea Arctic cod (*Boreogadus saida*) and juvenile Bering Sea snow and Tanner crab (*Chionoecetes* spp.). In both cases (pelagic and benthic), we measured a reduction of lipid storage during recent years of intense warming.

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