

The shifting trophodynamics in four southern Nova Scotia lakes after the introduction of Chain Pickerel (*Esox niger*)

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Invasive fish species Chain Pickerel (*Esox niger*) was first reported within Kejimikujik National Park and Historical Site in 2018. We used stable carbon ($\delta^{13}\text{C}$) and nitrogen ($\delta^{15}\text{N}$) ratios to assess food web structure and trophodynamics in four lakes ranging over an invasion spectrum: Loon Lake (first Chain Pickerel report in 2018), Grafton Lake (2019), Big Dam West Lake (2020) and Cobrielle Lake (2021). We found that *E. niger* can be grouped into two clusters based on their feeding habits, CP1 and CP2; $4.2\text{cm} \leq \text{TL} \leq 10.9\text{cm}$ and $20.2\text{cm} \leq \text{TL} \leq 58.6\text{cm}$. Mixing model results indicate CP1 individuals feed primarily on Odonata with a mean dietary proportion of 0.736 ± 0.079 . Those assigned to CP2 feed primarily on native fish with a mean dietary proportion of 0.724 ± 0.032 . Post-invasion there was a consistent decrease in overall trophic position for fish and Odonata prey items.

Key Words: Stable Isotope Analysis, Chain Pickerel, Invasive Species