Effects of the Bythotrephes invasion on native predatory invertebrates

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ABSTRACT: We explore the effects of the invasive predatory cladoceran *Bythotrephes longimanus* on the abundances and seasonal zooplankton consumption by the native predatory invertebrates *Leptodora kindtii*, *Chaoborus* spp., and *Mysis relicta* in inland lakes of Ontario. In lakes with *Bythotrephes*, the seasonal consumption by all invertebrate predators combined ranged from 2.39 to 13.50 g m^{-2} and was 300% higher than in lakes without the invader. This was due to *Bythotrephes* because there was no invasion effect on *Chaoborus* or *Mysis* consumption, while it actually decreased *Leptodora* consumption. *Leptodora* and *Chaoborus* abundances were lower in invaded lakes, but only *Leptodora* abundance was negatively correlated with *Bythotrephes* abundance. There was no effect of *Bythotrephes* on *Mysis* abundance. *Bythotrephes* consume more zooplankton than most other predatory invertebrates, including copepods, and often consume more zooplankton than planktivorous fish. The large increase in predatory invertebrate abundance and consumption due to *Bythotrephes* means that substantial portions of zooplankton production are probably being diverted from other consumers, such as juvenile and planktivorous fish, and that the role of predatory invertebrates in the pelagia of inland lakes has been intensified by the arrival of *Bythotrephes*.

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