

---

**MATT CALDER**, University of Western Ontario

*Net Reproductive Number for a Matrix Population Model with Dispersion and an Application to Neogobius Melanostomus*

The round goby fish, *Neogobius melanostomus*, is an invasive species that was first detected in St. Clair River in 1990, was present in all of the Great Lakes by 2000, and has led to the decline or displacement of many native species such as the mottled sculpin, sturgeon, and trout. In this talk, I will present a general matrix population model that includes dispersion which is applicable to the round goby. Moreover, I will derive the global net reproductive number and relate it to the global growth rate, the local net reproductive numbers, and the local growth rates. Numerical results involving the round goby will be provided and these results should lead to practical control strategies.