GREAT LAKES FISHERY COMMISSION

Control sea lamprey in the Cheboygan River with sterile males: stage 2 – sterile male release

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ABSTRACT:

Although the release of sterilized insects to control pest populations has been used successfully during the past six decades, application of the method to other groups of animals, especially vertebrates, has largely been overlooked or met with failure. Here, we demonstrate for the first time in fish, that a population of sea lamprey (*Petromyzon marinus*), arguably one of the most impactful invasive fish in the world, could be controlled by the release of sterilized males. Specifically, the release of greater than 35 sterile males to every wild nonsterile male into a geographically isolated population of adult spawning sea lamprey collectively resulted in the first delay in pesticide treatment to this population since treatments began in 1966. However, statistical power was limited in resolving uncertainty in percent reduction in larval production attributed to sterile male release because of substantial year-to-year variability in larval cohort density and distribution. Therefore, additional monitoring that

accounts for recruitment variability in time and space would provide the best information about the specific rates at which sterile male release reduces recruitment. The results are relevant to vertebrate pest control programs worldwide, especially as technical opportunities to sterilize vertebrates and manipulate sex ratios expand in the genomics era.