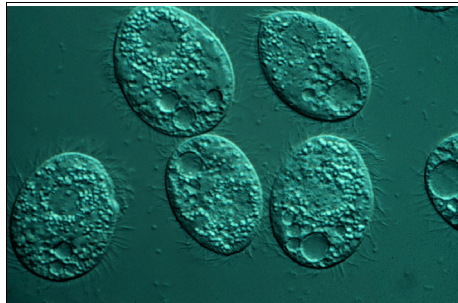


Bumper Car Disease

The North American lobster industry holds lobsters in captivity for various periods to supply the market with live product year-round. Mortalities during holding result in considerable losses, estimated at 10 to 15% per year by the industry. In any confinement situation such as a lobster pound, the chance of infectious disease outbreaks is usually higher than in a natural or wild environment, especially when many animals from various sources are kept together. Although many mortality problems can be attributed to non-infectious causes, there are some infectious diseases among the possible causes for lobster mortalities during holding.

Bumper Car Disease, or ciliate disease is caused by the ciliate *Anophryoides haemophila*¹ and represents a potential cause of lobster mortality, especially during winter impoundment. Because these ciliates are active and motile in the lobster hemolymph (lobster blood), they resemble “bumper cars” found in amusement parks and carnivals when observed under the microscope, thus the name. Ciliates are commonly found in invertebrates, including the edible crab, the Dungeness crab, marine isopods, the Pacific oyster and the American lobster. This disease eventually leads to depletion of hemocytes (lobster blood cells), resulting in significantly reduced clotting ability². Lobsters can become infected by transmission of the ciliates through open wounds often inflicted during the molt, and possibly through the thin layer of cells covering the gills². Bumper Car Disease affects the wild population of lobsters in Atlantic Canada and North-East USA, with levels of infection approaching 20%^{1, 3}.



Light electron microscopic photograph of the ciliate causing bumper car disease.

However, a survey conducted in 1997 in Prince Edward Island lobsters revealed that only one lobster tested positive out of a sample of 254 (0.4%)⁴. Apparently, the prevalence of infection is highly variable, depending on geographical location and time of year

In ponding situations, outbreaks leading to significant mortalities have been reported in Atlantic Canada and in northeast USA, and will typically occur when water temperatures are below 5°C. There are presently no approved treatments for bumper car disease. However, good water quality, wound avoidance and lower stocking densities should help in decreasing the chances of Bumper Car Disease outbreaks in holding conditions.

¹ Cawthorn et al. 1996. Description of *Anophryoides haemophila* n. sp. (Scuticociliatida: Orchitophryidae), a pathogen of American lobsters *Homarus americanus*. Dis. Aquat. Org. 24:143-148.

² Cawthorn. 1997. Overview of bumper car disease - impact on the North American lobster fishery. Inter. J. Parasitol. 27:167-172.

³ Aiken et al. 1973. Ciliate infestation of the blood of the lobsters, *Homarus americanus*. International Council for the Exploration of the Sea-Shellfish and Benthos Committee. CM1973/K: 46, 2p.

⁴ Lavallée et al. 2001. Prevalence of *Aerococcus viridans* and *Anophryoides haemophila* in American lobsters *Homarus americanus* freshly captured in the waters of Prince Edward Island, Canada. Dis. Aquat. Org. 46:231-236

O There is no treatment for Bumper Car Disease; wound avoidance is critical to prevent outbreaks.

O Lobsters appear more susceptible to the disease in colder waters.



AVC Lobster Science Centre™
Atlantic Veterinary College, University of Prince Edward Island
Charlottetown, PE, Canada C1A 4P3
Tel: (902) 894-2884 Fax: (902) 894-2885
www.lobsterscience.org

