

Environmental and anthropogenic factors affecting the probability of occurrence of *Oncomegas wagneri* (Cestoda: Trypanorhyncha) in the southern Gulf of Mexico

Víctor M Vidal-Martínez
Cinvestav, México

Understanding the environmental and anthropogenic factors influencing the probability of occurrence of the marine parasites is fundamental for determining the circumstances under which they can act as bioindicators of environmental impact. The aim of this study was to determine whether physicochemical variables and polyaromatic hydrocarbons affect the probability of occurrence of the larval cestode *Oncomegas wagneri*, which infects the shoal flounder, *Syacium gunteri*, in the southern Gulf of Mexico. The study included 162 sampling sites, where sediments, water and the shoal flounders were collected. We used the boosted generalized additive models (boosted GAM) to examine the potential statistical relationships between the contaminants and physicochemical variables from the water and sediments, and the probability of the occurrence of this parasite. The boosted GAM accurately predicted the

probability of the occurrence of *O. wagneri*. The variables with the highest frequencies of appearance in the models (proxies for the explained variability) were the polyaromatic hydrocarbons of high molecular weight (PAHH, 95 %). The PAHH, together with N and P, are carried by rivers that discharge into the ocean, which enhances the growth of bacteria and intermediate hosts. Our results suggest that sites with PAHL/PAHH ratio values up to 1.89 promote transmission based on the high values of the prevalence of *O. wagneri* in the study area. In contrast, PAHL/PAHH ratio values ≥ 1.90 were apparently harmful for the parasite transmission. Overall, the results indicate that the PAHs affect the probability of occurrence of *O. wagneri* in the southern Gulf of Mexico.

e: vvidal@cinvestav.mx