

## A case of close interspecific interactions between diatoms: selective attachment on a benthic motile species

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*Aquatic Microbial Ecology* 80: 55–59 (2017)

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### Supplement 2

Calculation of conditional probabilities given the observed occurrences of a potential host species in the regional database.

C = number of co-occurrences of ACOP and a potential host

n = number of sampled sites

n<sub>1</sub> = number of occurrences of ACOP

n<sub>2</sub> = number of occurrences of a potential host

$$\text{Random hypothesis: } p(C \geq C_o) = \sum_{k=C_o}^{n_2} \frac{C_{n_2}^k \cdot C_{n-n_2}^{n_1-k}}{C_n^{n_1}}$$

$$\text{Environmental model: } p(C \geq C_o) = \sum_{k=C_o}^{n_2} \sum_{X \in Pk} \prod_{i \in X} p_i \prod_{j \in \bar{X}} (1 - p_j)$$

where  $Pk$  are the possible combinations of  $k$  sites among the sites where a potential host is present,  $p_i$  is the random forest-derived pseudo-probability of occurrence of ACOP at site  $i$ .