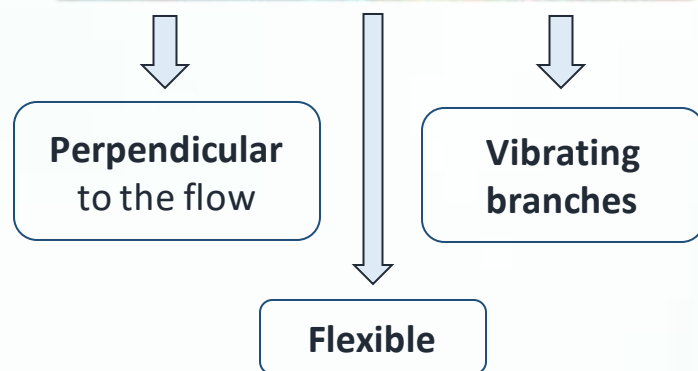


Coral Adaptation for Nutrition



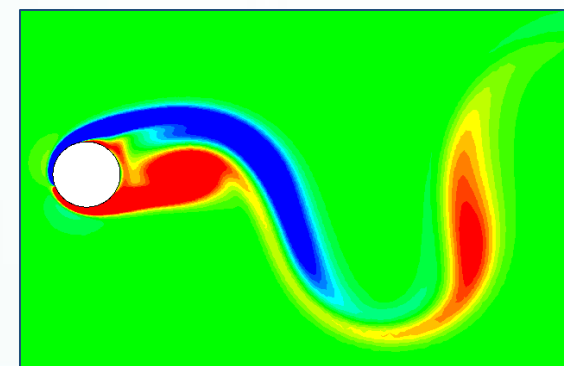
Goal of the Research

Predict the **morphology** of a soft coral **only** from its **habitat**

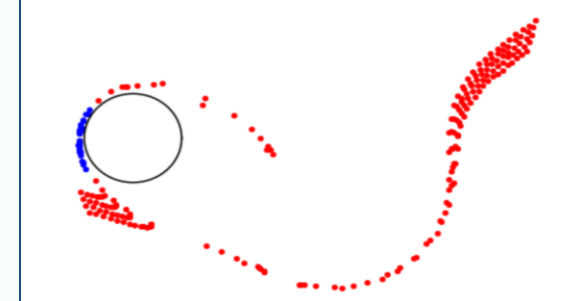
Methodology

Numerical simulations

Flow in domain

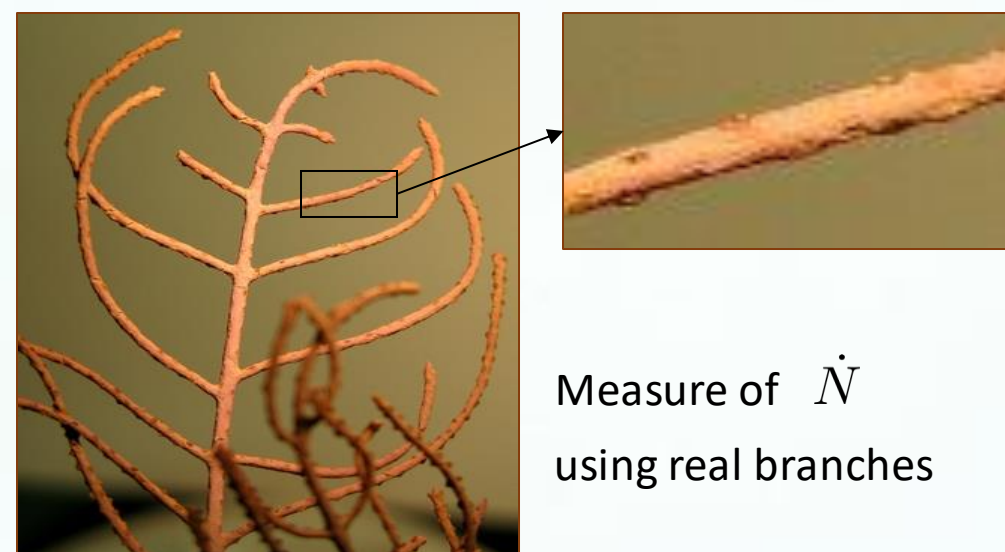


Particle trajectories



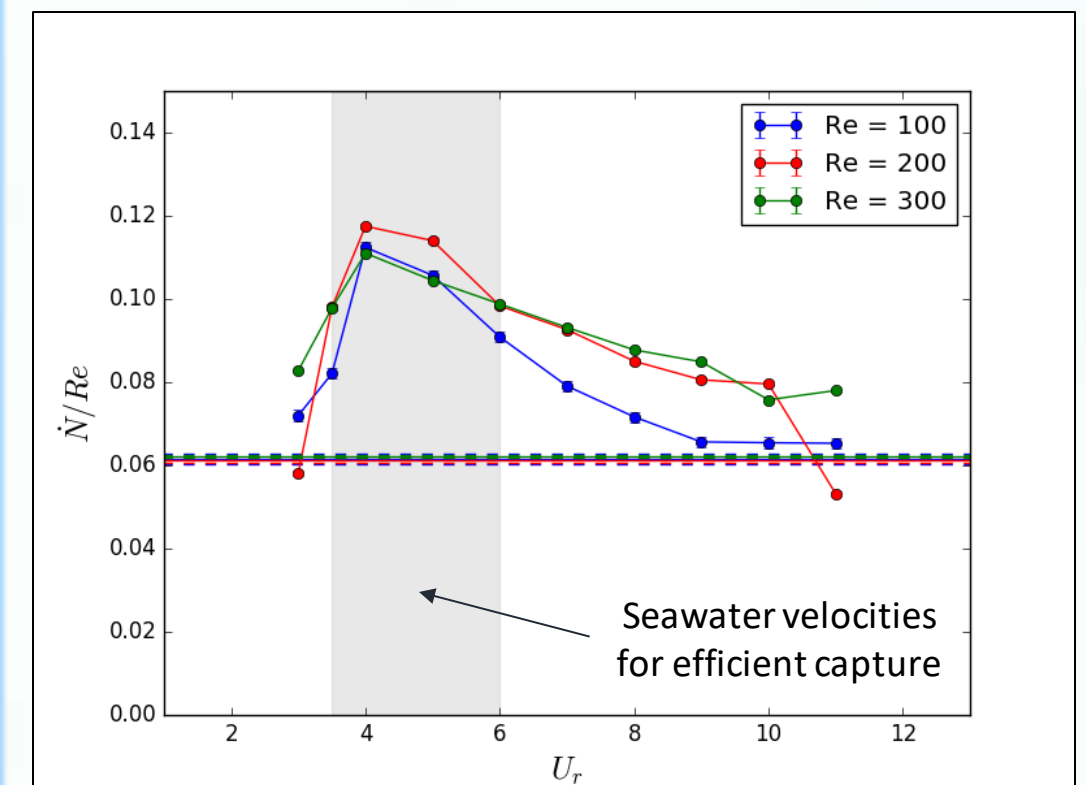
Capture rate \dot{N}

Experiment



Preliminary Results

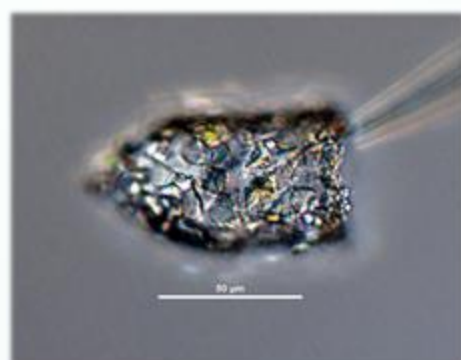
$$\dot{N} \sim Re \times f(U_r)$$



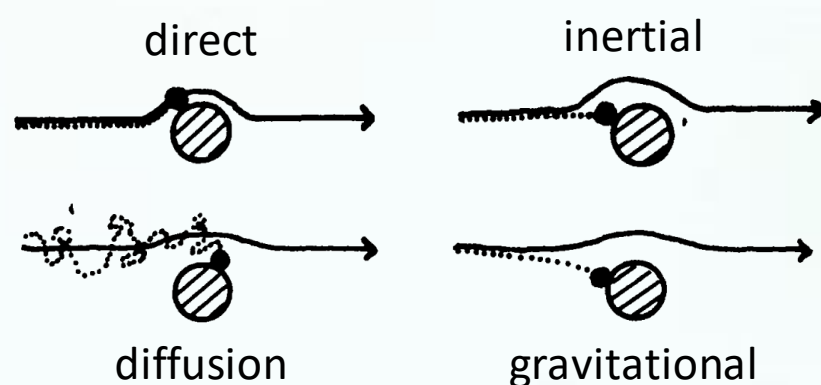
$$Re \sim \frac{UD}{\nu}$$

$$U_r = 2\pi \frac{U}{D} \times \sqrt{\frac{m}{k}} \leftarrow \text{Coral rigidity}$$

Nutrient Capture



A phytoplankton Tintinnid (scale: 50 μ m)



Interpretation

Corals must tune their rigidity k during growth to maximize the capture rate

Habitat depth H



Acknowledgments

