



## Turbulence avoidance: An alternate explanation of turbulence-enhanced ingestion rates in the field

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**ABSTRACT:** Field observations supporting the hypothesis that wind-driven mixed-layer turbulence enhances the prey ingestion by larval fish tend not to have the resolving power to distinguish an alternative hypothesis: that the fish larvae and their prey avoid the turbulence by swimming or sinking downward to the calmer waters, thereby enhancing their concentrations and increasing encounter rates of predator and prey. Here, evidence is supplied supporting the notion of the turbulence-avoidance hypothesis, and some rough calculations are made to estimate the conditions under which it might apply, how large its effect might be, and the types of organisms that might benefit from it. It is suggested that the turbulence-avoidance behavior could lead to significant increases in predator and prey concentrations below the mixed layer only hours after the onset of wind-driven mixing. Larger larval and juvenile fish are expected to benefit the most from such a behavior because they are stronger swimmers and eat larger prey, which might also exhibit the turbulence-avoidance behavior.

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