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Auto-correlated directional swimming can enhance settlement success and connectivity in fish larvae

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Highlights:

- The pelagic movement of coastal marine fish is largely modeled as a non-directional movement (i.e. Simple Random Walk - SRW) in biophysical dispersal models. Yet, recent studies show that coastal marine fish larvae swim in a directional manner in the pelagic environment –indicating a Correlated Random Walk (CRW) rather a Simple Random Walk (SRW).
- When CRW is implemented in a biophysical dispersal model, settlement success and population connectivity substantially increase.
- Future modeling efforts should apply CRW when modeling pelagic larval movement of fish larvae in biophysical dispersal models.

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