Agent-Based Model of glass eel tidal migration

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Selective Tidal Stream Transport migration

Added environmental effects through meta-analysis of literature

- Water temperature ($V_{swimming}$)
- Salinity
- Day/night
- (Moon)light
- Local interactions
The ABM

- Salinity gradient
- Evaluation of tide every $t$
- Categorize tidal regime
- $T$ dependent swimming under slack regime
- Coupled to 3D hydrodynamic model of estuaries.

Diagram:

- tstep=0
- Direction towards $\Delta S/\Delta xy < 0$ ($t_{step}=t_{step}+1$)
- Flow dir. $\geq -\Delta S/\Delta xy$ dir.
- Flow vel $< 0.1\pm0.05$
- Navigate towards the bottom and stop
- Navigating against flow towards slow flowing areas
- Going with the flow with a wide distribution across water column
Application

- Validation in Thames Estuary using ZSL/EA data
- Apply to Milford Haven Waterway to evaluate possible recruitment
Full STST // day+ night // cont. release // T dependent swimming