Review of: "Can a Rudderless Species Survive?"

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The author presents a stochastic model representing the survival chance of a rudderless species under the assumption that each individual can reproduce only in its birthplace. The paper proves a theoretical result that involves the mortality rate, the probability of returning to the birthplace, and the chance of surviving. In particular, the returning probability must be larger than 1/2 for the species to have a non-zero surviving chance. Since greater mobility increases food availability but reduces the returning probability, this result may suggest that the species is encouraged to evolve and develop navigation skills.

The paper is clear and concise, and the proposed approach is elegant with some interesting elements of novelty.

Minor comments:

- In section “2. Evolutionary paths”, I would suggest further clarifying that the argued evolutionary path makes sense under the assumption that each individual can reproduce only in its birthplace and that this aspect cannot be changed during evolution. The abstract helps contextualize the work by using salmon and turtles as examples, but section 2, written as it is, sounds a little too general.

- In section “3. Proof of Theorem 1”, the following classic result is used twice: “a BGW process has a positive probability of surviving if and only if the mean number of children per individual is higher than 1”. While this is a known result, the reader is not necessarily expected to know it. I suggest adding a citation when the result is first used.