Thesis – will need a more descriptive title!

Master's Thesis

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Contents

1 Introduction

- spend time reading papers initially to do a review, get a review paper out of it
- make predictions/hypotheses for project
- what influences stochasticity: what is it and what is affecting it
- very little testing has been done on effects of stochasticity

1.1 Importance and recognition of Traditional Indigenous Knowledge

- calls to action for scientists: Wong et al. (2020)
- weaving TIK and Western knowledge: Tengö et al. (2017)
- *Weaving Indigenous knowledge systems and Western sciences in terrestrial research, monitoring and management in Canada: A protocol for a systematic map* (Henri et al. 2021)
- *Indigenizing the North American Model of Wildlife Conservation* (Hessami et al. 2021)
- fish conservation, Indigenous perspectives (Bowles et al. 2021)
- Inform priors and simulation distributions using Indigenous Traditional Knowledge:
  - A Bayesian framework with Indigenous Knowledge-informed priors (Girondot and Rizzo 2015)
  - *Local knowledge in ecological modeling* (Bélisle et al. 2018)
  - https://focus.science.ubc.ca/stats-660805dd930a

1.2 Time scale of stochasticity

Organisms are most affected by stochastic events and processes which occur on time scales which are shorter than the organism's life span (**ref?**). Weekly heavy rains which alter a lake's salinity (**ref?**) are more likely to affect the lake's inhabitants than a multi-centennial drought, and high-salinity conditions may be perceived as the (stressful) standard by organisms which were born during periods of drought. However, stochastic processes and events which occur on time scales that are longer than an organism's lifespan may still cause significant effects on a population's fitness and stability. Droughts which occur on the time scale of centuries or millennia (Haig et al. (2013)) are unlikely to affect organisms directly, but such events could still alter the population's habitat or breeding grounds enough to cause a population collapse or prevent individuals from reproducing in their habitual breeding grounds (or reproduce altogether).

For an event or process to be recognized as deterministic by an individual, it must occur multiple times during the individual's lifetime (but the converse is not true). *some animals can develop memory* (Foley, Pettorelli, and Foley 2008)

2 Methods

Inform priors and simulation distributions using Indigenous Traditional Knowledge

3 Evnironmental stochasticity map

- currently don't have a raster of stochasticity => paper / product
- PCA on main drivers/causes of stochasticity

4 Movement analysis

- add HFI to analysis

5 Synthesis chapter

References

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