Dear Editorial Staff,

On behalf of myself and co-authors, I am pleased to submit *Tracking the carbon footprint of lakes: dynamic modeling of organic carbon fates in lake ecosystems* as a standard article to *Ecological Applications*. This paper is the product of an interdisciplinary working group as part of the second cohort Global Lake Ecological Observatory Network (GLEON) [Graduate Fellowship Program](http://fellowship.gleon.org/). The paper broadly addresses the role of lakes in landscape and global carbon cycling. Papers published in the last approximately ten years have identified that lakes actively process carbon, but few studies have integrated all the important mechanisms that contribute to lake carbon budgets in a unified, ecosystem-scale model framework. Without bringing these mechanisms together, it is difficult to compare key carbon fates within lakes, including carbon burial, the process of long-term carbon storage in lake sediments. In addition, it is difficult to compare fates across lake ecosystems when different models were applied; this represents a clear need for development of a generalizable model.

We took advantage of available long-term datasets (e.g., LTER) to compare carbon fates across five different lake systems. This study was much improved by its interdisciplinarity, bringing together limnologists, ecosystem ecologists, landscape ecologists and others to solve a problem typically tackled by limnologists in the past. This paper has not been submitted for publication in other journals; *Ecological Applications* was our primary choice. We have made analysis scripts and data available through our Github repository (<https://github.com/GLEON/SOS>), in accordance with open science. I am available to address any questions you might have and look forward to hearing from you.

Sincerely,

Ian M. McCullough, PhD

Postdoctoral Research Associate

Department of Fisheries and Wildlife

Michigan State University

East Lansing, MI 48824