

## Accepted Manuscript

Regime shifts and ecological catastrophes in a model of plankton-oxygen dynamics under the climate change

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PII: S0022-5193(17)30182-0  
DOI: [10.1016/j.jtbi.2017.04.018](https://doi.org/10.1016/j.jtbi.2017.04.018)  
Reference: YJTBI 9043



To appear in: *Journal of Theoretical Biology*

Received date: 26 December 2016  
Revised date: 12 April 2017  
Accepted date: 20 April 2017

Please cite this article as: Sergei Petrovskii, Yadigar Sekerci, Ezio Venturino, Regime shifts and ecological catastrophes in a model of plankton-oxygen dynamics under the climate change, *Journal of Theoretical Biology* (2017), doi: [10.1016/j.jtbi.2017.04.018](https://doi.org/10.1016/j.jtbi.2017.04.018)

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## Highlights

- A model of plankton-oxygen dynamics under the climate change is developed and studied
- Sustainable oxygen production is only possible within a relatively narrow parameter range
- The global warming can cause the oxygen production to stop
- The regime shift is shown to be preceded by an increased regularity in plankton spatial distribution and long term transient dynamics

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