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The Beverton-Holt model with periodic and conditional harvesting. (English) Zbl 1342.91025
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Summary: In this theoretical study, we investigate the effect of different harvesting strategies on the discrete Beverton-Holt model in a deterministic environment. In particular, we make a comparison between the constant, periodic and conditional harvesting strategies. We find that for large initial populations, constant harvest is more beneficial to both the population and the maximum sustainable yield. However, periodic harvest has a short-term advantage when the initial population is low, and conditional harvest has the advantage of lowering the risk of depletion or extinction. Also, we investigate the periodic character under each strategy and show that periodic harvesting drives population cycles to be multiples (period-wise) of the harvesting period.

MSC:

- 91B76** Environmental economics (natural resource models, harvesting, pollution, etc.)
92D25 Population dynamics (general)

Cited in **6** Documents

Keywords:

Beverton-Holt model; periodic harvesting; conditional harvesting; optimal harvesting; periodic discrete systems; periodic solutions

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