

# Ecological Informatics Applications in Water Management



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*Abstract book*

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## Studying population biology and dispersal of Kentish plover (*Charadrius alexandrinus*) using a spatial dynamic, individual based model. Including recommendations for environmental management.

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The Kentish plover (*Charadrius alexandrinus*) is a characteristic bird species of dynamic coastal habitat in the Netherlands. The population in the Dutch Delta area has strongly declined since the beginning of the 20<sup>th</sup> century. It has been suggested that this is the result of the decline of suitable breeding area and because of disturbance by recreation. A complex dynamic model has been build in order to evaluate the relation between bird ecology and human pressures and to optimize possible ecological recovery measures. The virtual bird population is strongly declining. This trend can not be altered by creating new breeding areas or by improving existing breeding areas. A year to year varying - but usually very poor - breeding success is strongly related to abiotic factors that can not be controlled by environmental management. We conclude that the described model helps summarizing and analyzing combined expert knowledge and evaluating management options. Bird dispersal behavior could not be analyzed and still many questions remain. However, though building and analyzing the model has shown to be very complex and time consuming, we think that the 'process of modeling' has been very valuable.

