

Abstract

There have been various threats from upstream catchment developments to the water supply of the ecologically important Nylsvlei floodplain in South Africa.

Hydrological modelling of the catchments and unsteady hydraulic modelling of the floodplain (including measured losses to evapotranspiration and infiltration) with biotic links to *Oryza longistaminata* revealed that existing developments within the catchments have decreased areas suitable for growth of this plant in the Nylsvley Reserve by 9% on average from 1973/74 to 2000/01 compared to the catchment in a virgin state. Construction of the proposed Olifantspruit Dam with environmental flow releases would have reduced these suitable areas by a further 9% on average.

Catchment developments were found to have the greatest impact on floodplain inundation in average to dry years and would also reduce the frequency of occurrence of suitable conditions for growth of *Oryza longistaminata*.