



DEPARTAMENTO DE
MATEMÁTICA APLICADA



Seminario de Matemática Aplicada

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“Observers for nonlinear discrete-time Models of a Harvested Fish Population”

ABSTRACT :

We consider two discrete-time nonlinear model of a harvested fish population. Our purpose is to estimate the stock state of the fish population. To achieve this goal, we built an observer which is an auxiliary system that uses the total number of fish caught over each season and gives a dynamical estimation of the number of fish by age or stage class. We analyse the convergence of the observer and we show that the error estimation tends to zero with exponential speed if a condition on the fishing effort is satisfied.

This study shows how some tools from nonlinear control theory can help to deal with the state estimation problem in the field of renewable resource management.

**Organizado por el Departamento de Matemática Aplicada de la UCM,
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Seminario Alberto Dou (aula 209)
Facultad de CC. Matemáticas, UCM**