

Formal statistical stock assessments in dynamic bulk production model

fish610.055 Fisheries and ecosystem models

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Aggregate data

Have only total catch and abundance data, Y_y and l_y .
No error in catches:

$$B_{y+1} = B_y + rB_y(1 - B_y/K) - Y_y$$

Errors in indices:

$$l_y = qB_y e^{\epsilon_y}$$

or:

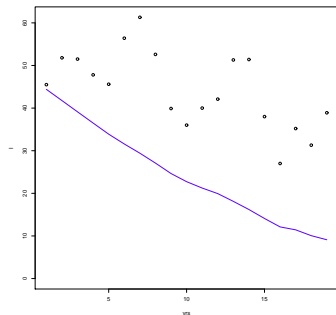
$$\hat{l}_y = qB_y$$

and

$$\ln l_y = \ln \hat{l}_y + \epsilon_y$$

Initial values for bulk production models

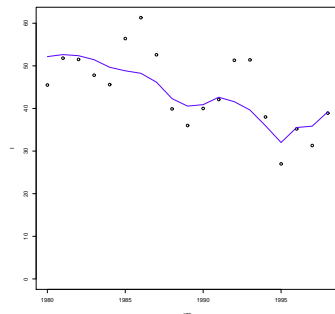
- 1 Define the model and parameters to be estimated.
- 2 Initialize parameters.
- 3 Evaluate the model fit.
- 4 Optimize the model fit.



<http://tutor-web.net/fish/fish5108statass/lecture40/nephronsse.r>

Estimation in bulk production models

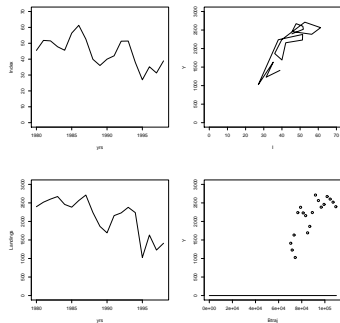
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Revising the model

Need to verify output

Nephrops model: K was unrealistic



More nephrops case studies

Longer time series are available

Series can be spatially disaggregated

See file nephrops.dat

Caveat: Fleet changes may have occurred during the time period - invalidates the analysis.

