**RCT3-R User Guide**

RCT3-R is an R function to replicate the functionality of the RCT3 software. RCT3 estimates current recruitment based on multiple surveys including historic and present data, and comparing this to historic recruitment levels. A linear fit between each survey and the recruitment data is found, and used to predict the recruitment in the present year. Estimates of the variability of these relationships are used to weight the estimates of recruitment to arrive at a single estimate of current recruitment.

RCT3-R requires 3 files, readRCT3.r, RCT3v4a.r and interface.r, which should be in the working directory, and the R library rpanel for the user interface.

The function takes the name of a file in either of the possible formats for RCT3 input, and produces an R object with the elements plot(), input(), output(), summary(), and printout(outputfilename). An alternative graphical user interface is provided by the function RCTinterface(). To save the objects produced by input(), output() and summary() as R objects RCT3-R must be run as a function. This data can be exported to a file by printout() in either mode.

A typical session might look as follows:

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| --- | --- |
| codRCT = RCT3("c:\\rct3\\data\\cod.csv") | produces the R object containing the output |
| codRCT$plot() | plots the RCT fits |
| codRCT$input() | returns a matrix of input values used |
| codRCT$output() | returns a list of output predictions |
| codRCT$summary() | returns a matrix with a summary of the output predictions |
| codRCT$printout(“filename.txt”) | writes a file containing the input and output data in the same format as RCT3. |

In addition to the filename, the following parameters may be specified fro RCT3:

|  |  |
| --- | --- |
| old | Whether the file is in the “old” RCT3 format (survey names follow data) or the new format (survey names before survey data)  Default=TRUE |
| logged | Whether any of the surveys are already logged. A Boolean vector of length nSurveys indicating whether surveys are already logged.  Default = NA (all data unlogged) |
| minpoints | The minimum number of points to use for regression between survey data and observed recruitment  Default =3 |
| regression | Type of regression “c” for calibration regression (most variation is in the survey data), “p” for predictive (most error in the observations of recruitment)  Default ='c' |
| shrink | Whether to create a virtual survey based on average recruitment. Should be used only with calibration regression  Default =TRUE |
| taper | Power of the taper, 0 – no taper, 1 – linear taper, 2 – biquadratic taper, 3 – tricubic taper.  Default =3 |
| tapert | Time period for the taper to reach zero, data older than this is ignored.  Default =20 |
| minse | Default = 0 |
| configfile | If a config file is provided, this is used for values of all parameters except filename and old.  Default = NA |