

## Simulation initialization

Get case arguments given scenario ID

`get_caseval()`

Validate input models, copy folders, and rename files;  
copy bias-adjusted .ctl file if needed

`verify_input()`, `copy_ss3models()`

## Operating model

Specify recruitment deviations

`change_recdevs()`

Specify fishing-mortality trajectory in .par file

`change_f()`

Specify (possibly) time-varying parameters (e.g. natural mortality, growth, maturity, fecundity, selectivity) in .par file

`change_tv()`

Run the operating model

`run_ss3model()`

## Survey and composition sampling

Sample fleet data with observation error and write to the estimation model .dat file — can include fishery-dependent and -independent abundance index, age-composition data, and length-composition data

`change_index()`, `change_agecomp()`, `change_lcomp()`

Manipulate the starter file for retrospective analysis

`change_retro()`

## Estimation model

Manipulate estimation model; add forecasting if needed

`change_e()`

Run the estimation model

`run_ss3model()`

Calculate bias-adjustment factor if needed

`run_bias_ss3()`

Repeat for  
scenarios  
and iterations