

Management Strategy Evaluation of Biomass Dynamic Management Procedures

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Introduction

MANAGEMENT STRATEGY EVALUATION (MSE) requires six steps Punt and Donovan (2007); namely i) identification of management objectives; ii) selection of hypotheses for the OM; iii) conditioning the OM based on data and knowledge, and possible weighting and rejection of hypotheses; iv) identifying candidate management strategies; v) running the Management Procedure (MP) as a feedback control in order to simulate the long-term impact of management; and then vi) identifying the MPs that robustly meet management objectives.

In this document we provide an example of conducting and MSE using the mpb package.

```
library(mpb)
```

```
library(FLash)
```

```
library(FLBRP)
```

```
# load(om)
```

```
# load(eql)
```

```
load("/home/laurie/Desktop/flr/mpb/data/om.RData")
```

```
load("/home/laurie/Desktop/flr/mpb/data/eql.RData")
```

```
#' om=fwdWindow(om,eql,end=2030)
```

```
#' om=propagate(om,100)
```

```
#' srDev=FLQuant(0,dimnames=list(year=2000:2030))
```

```
#' srDev=rlnorm(100,srDev,0.3)
```

```
#'
```

```
#' om=fwd(om,catch=catch(om)[,ac(2000:2011)],sr=eql,sr.residuals=srDev)
```

```
#' om=fwdWindow(om,eql,end=2040)
```

```
#'
```

```
#' uDev=FLQuant(0,dimnames=list(year=ac(dims(eql)["minyear"]):ac(dims(eql)["maxyear"])))
```

```
#' uDev=rlnorm(100,uDev,0.3)
```

```
#'
```

```
#' library(popbio)
```

```
#' mp=FLBRP2biodyn( eql,"biodyn")
```

```
#'
```

```
#' modelParams=mpb:::modelParams
```

```
#' setParams(mp)=ssb.obs(eql)*%uDev  
# ' setControl(mp)=params(mp)  
#'
```

References

Punt, A.E., and G.P. Donovan. 2007. "Developing Management Procedures That Are Robust to Uncertainty: Lessons from the International Whaling Commission." *ICES J. Mar. Sci.* 64 (4): 603–12.