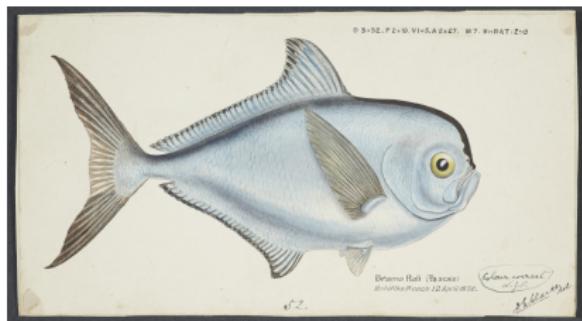


Implementation system explained

Course on Management Strategies Evaluation with FLR and a4a
25-29 November 2019, Ispra, Italy



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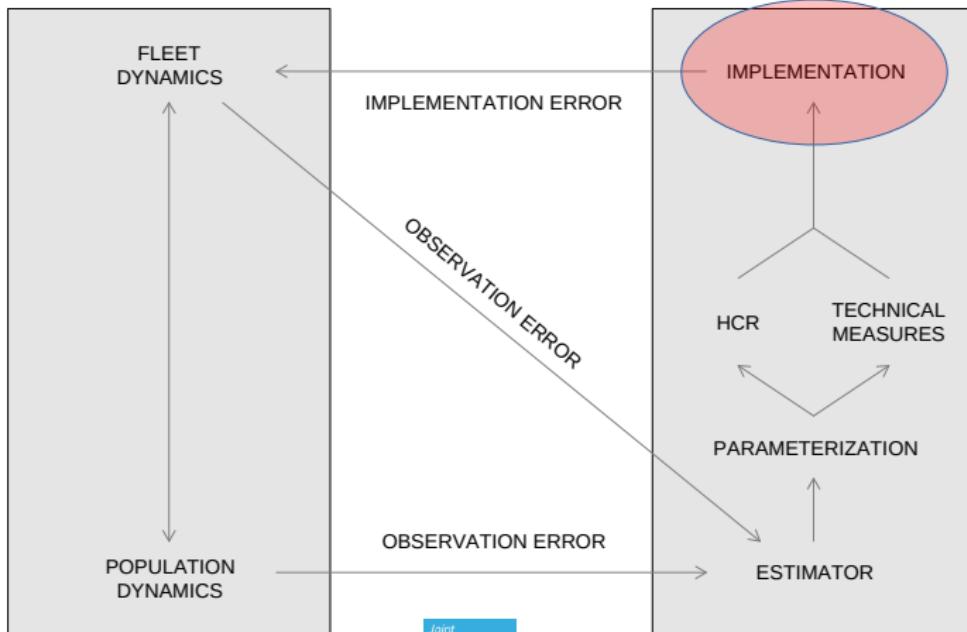
Joint Research Centre
European Commission

credit: Bramabrama (NZ) - Ray's Bream, 1872, by Frank Edward Clarke. Purchased 1921. Te Papa (1992-0035-2278/86)

Implementation system function

- ▶ Translates the decision made by the HCR into a quantity that can be regulated and enforced.
- ▶ The regulatory quantity is used as a proxy/indirect control over fishing mortality, to recover, optimize or develop a fishery.
 - ▶ input control: regulates effort or capacity or ... ;
 - ▶ output control: regulates removals, mostly tends to relate to landings although there's a push to regulate also discards (see EU landing obligations);
 - ▶ mix control: mixes both systems to complement each other.
- ▶ It's separated from the HCR to allow explicit modelling of the theoretical and operational frameworks.

Implementation system within MSE cycle

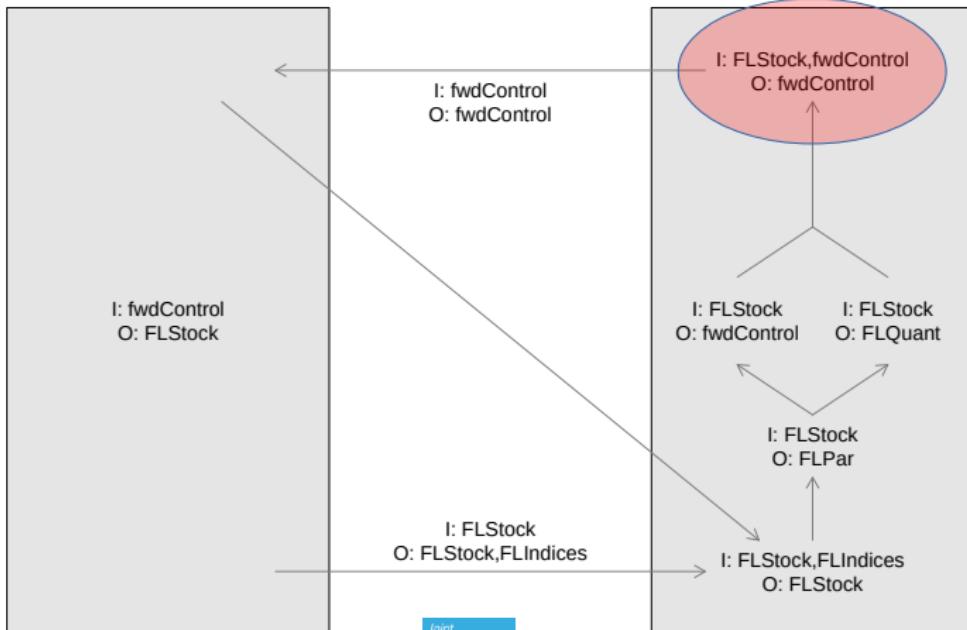




Implementation system within MSE cycle

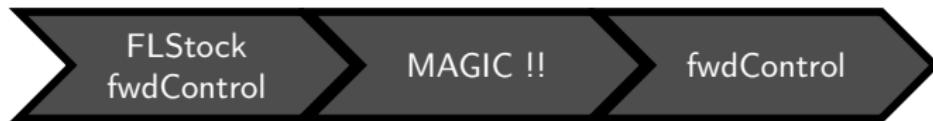


Implementation system API





Implementation system API



Note the tracking matrix and generics arguments are always passed. If not explicitly it'll be in the '....'.



Coding an implementation system

```
my.isys <- function(stk, ctrl, args, tracking, ...) {  
  
  # code that runs a stock assessment, creates a new stock object with the  
  # estimations and updates the tracking matrix  
  
  # output must have a fwdControl object  
  list(ctrl = ctrl.isys, tracking = tracking)  
}
```



Next

Hands-on !