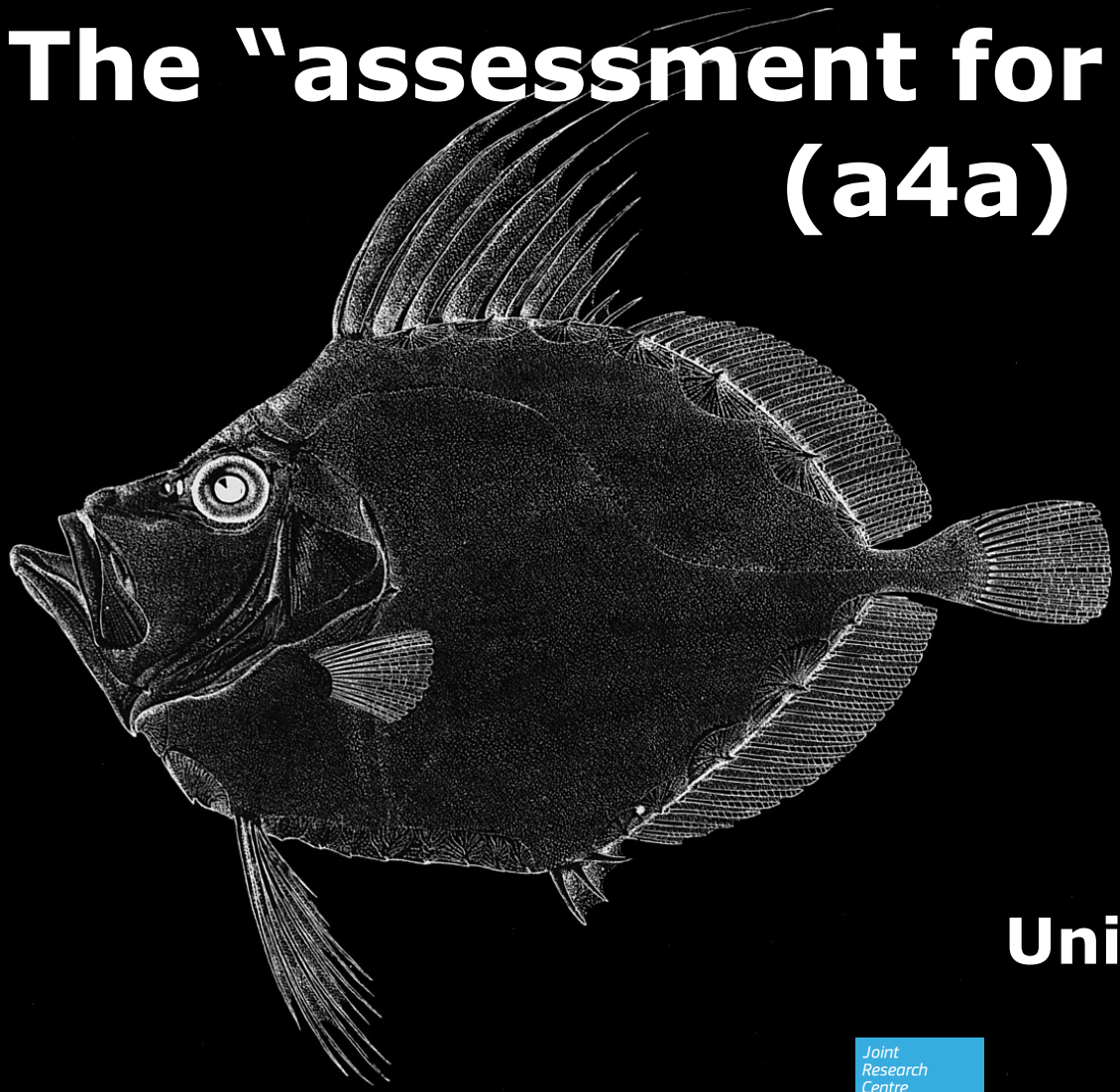
The “assessment for all” Initiative (a4a)



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Long term vision

To have a group of standard methods *that can be applied* rapidly *to a large number of stocks,* without requiring *a strong statistical technical background, but* making use *of the technical knowledge on the fisheries, stocks and ecosystem characteristics.*

Why

- Increasing demand for marine fish abundance and exploitation estimates.
- Large investments being made in collecting information.
- Increasing will to rely on scientific advice for fisheries management.

Setting the scene in Europe

- Biological parameters (growth & reproduction) are being collected for 300+ stocks in waters where European fleets operate.
- The DCF reports make it difficult to evaluate the number of species being sampled, but it should be hundreds.
- DCF & Advice budget 2007-2013 is ~360m€(*)

(*) SEC(2011) 1417 final (**) *2008/949/EC, Annex, Chapter I, 1.b*

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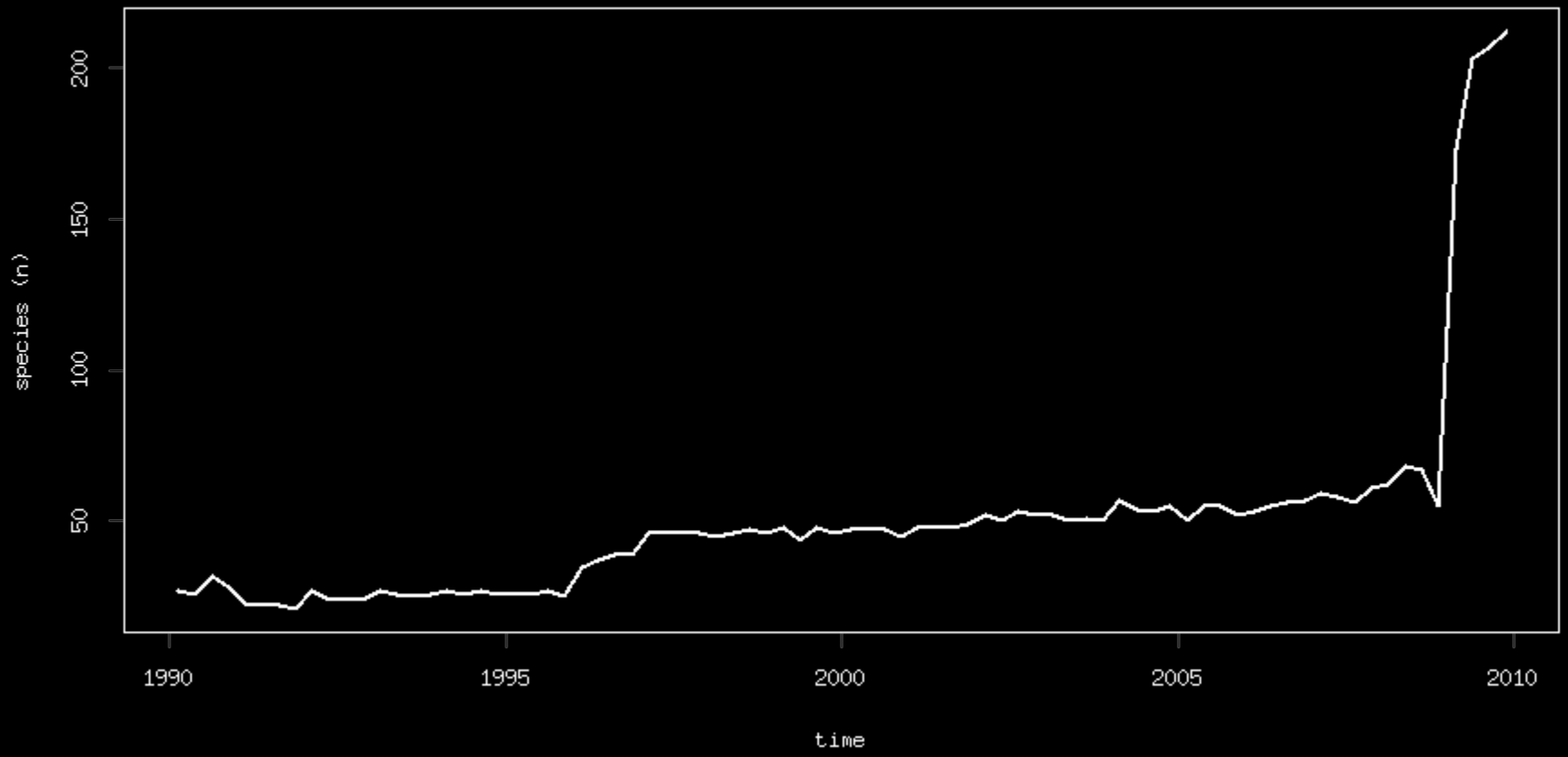
e.g. PT sampled species (lenghts)



Setting the scene worldwide

- US law requires all federal fisheries to come up with annual catch limits, including appropriate buffers to account for scientific and management uncertainties.

So what ? (Miles *dixit*)

What if ~2020 EU fisheries scientists are asked to assess hundreds of stocks, and justify ~1bn€ spent in data collection ?

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Solution !?

Standardize and enter automatic mode !!

Solution !?

Estimate what you know,

MSE(*) what you don't !!

(*) Management Strategies Evaluation

Solution !?

Move focus from numerical magic into more interesting subjects, like ecossystem, population or fleet dynamics.

a4a initiative

(a) develop an assessment method targeting stocks that have a reduced knowledge base on biology and moderate time series on exploitation and abundance;

(b) trigger the discussion about the problem of massive stock assessment.

(c) capacity building

How ?

(1) Define a moderate data stock (entry level)

(2) Develop a stock assessment framework

(3) Develop a forecasting algorithm based on MSE

(4) Carry out training courses for marine scientists

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(1) The "moderate data stock"

(a) Exploitation

- Nominal effort
- Volume (L, D)
- Length frequencies

(b) Biology

- Information based knife edge mat ogive
- Indications for growth model
- Length – weight relationship

(c) Index of abundance

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(2) The stock assessment ~~model~~ framework

- Non-Linear catch-at-age model implemented in R/FLR(*)/ADMB that can be applied rapidly to a wide range of situations with low parametrization requirements

(*) http://flr-project.org

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(3) Forecasting (MSE & Co.)

MSE is seen as a sophisticated forecasting algorithm that takes into account structural uncertainty about stock dynamics (growth, recruitment, maturity) and on exploitation by commercial fleets (selectivity), embedding the framework of decision making.

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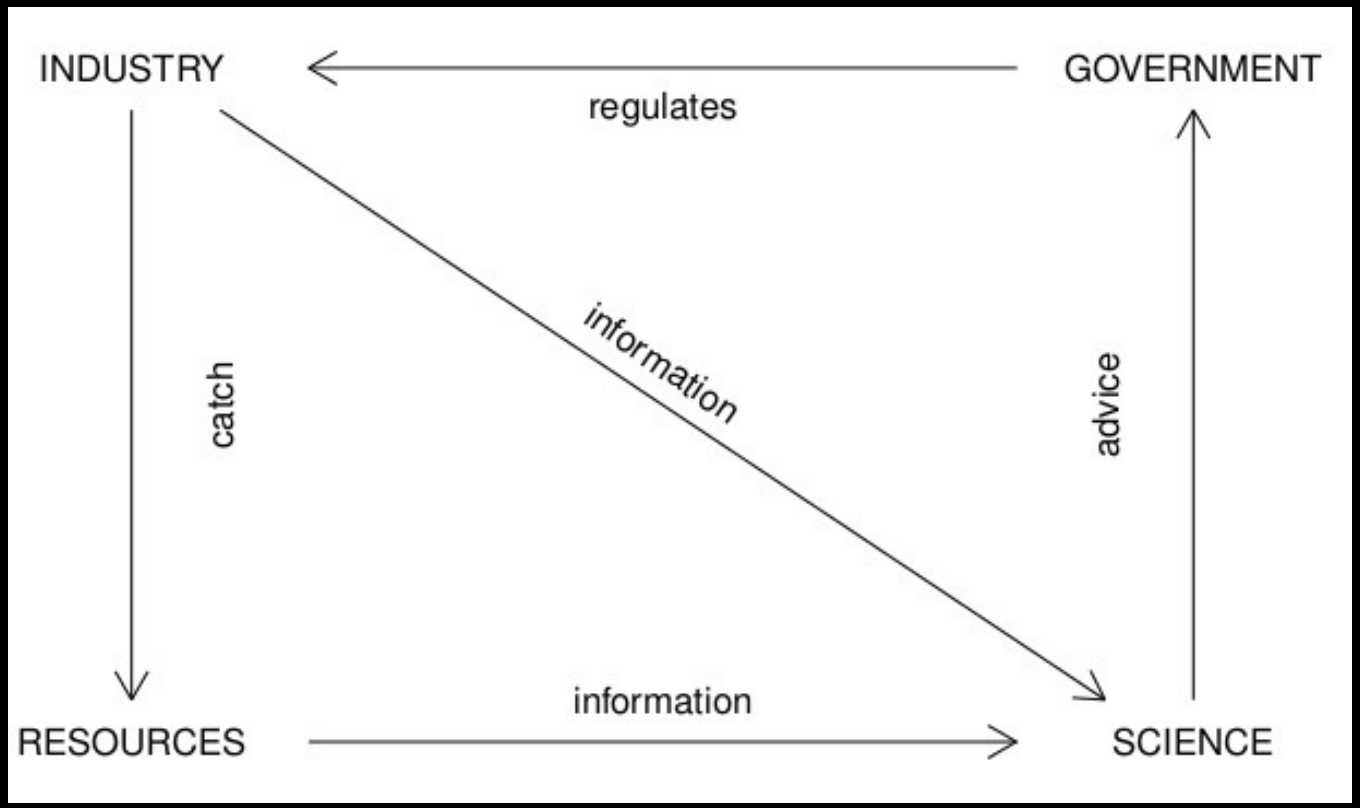
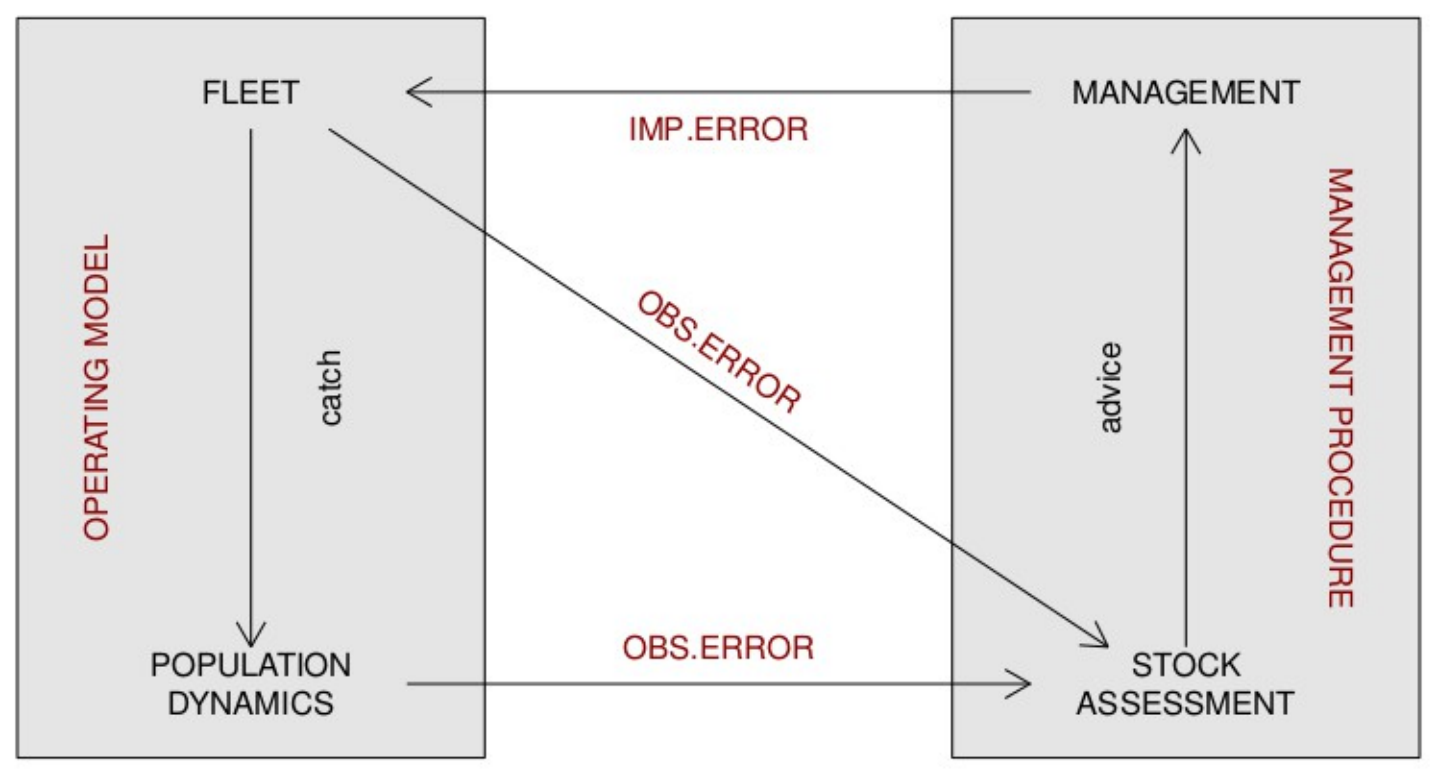
Fisheries Management Cycle



Management Strategies Evaluation (MSE)



The standard MSE

- OM uncertainty in growth, S/R and selectivity
- 3 HCR based on:

  catch, surveys, assessments
- 3 assessment models

  biodyn , simple and complex SCA
- OE for catch and index
- IE in F or catch

a4a methods' workflow

UNCERTAINTY

GROWTH

NATURAL MORTALITY

MODEL

PARAMETERS

IMPLEMENTATION

DECISION MAKING

SCENARIOS

European Commission

Wrapping up

a4a aims to provide standard methods for stock assessment and forecasting that can be applied rapidly to a large number (all ?) stocks in a sea basin.

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Thank you for your attention !

(https://fishreg.jrc.ec.europa.eu/web/a4a)

Joint Research Centre