The "Assessment for All" Initiative (a4a)

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The a4a Initiative

The European Commission Joint Research Centre's (JRC) "Assessment for All" (a4a) Initiative was launched in response to the significant increase in data collection driven by European Union investments to support the management of fisheries resources.

The a4a strategy aimed to simplify and standardize the often complex methodologies used in fisheries science. It focused on developing flexible, modular frameworks that can adapt to varying levels of data availability, regional contexts, and stakeholder objectives.

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One major step to achieve the a4a goals was the development of a stock assessment model that could be applied rapidly to a large number of stocks and for a wide range of applications: traditional stock assessment, conditioning of operating models, forecasting, or informing harvest control rules in MSE algorithms.

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While a4a's framework simplifies traditional assessment approaches, it faces challenges such as ensuring the quality and consistency of input data, especially in regions with limited monitoring infrastructure.

To address this, the initiative incorporates uncertainty into its models, leveraging MCMC frameworks and other statistical tools to account for variability in data quality and ecosystem processes.

Moderated data stock

- volume of catches in weight (which should include landings and discards)
- length structure of the catches (based on selectivity studies or direct observations)
- natural mortality by length
- proportion of mature individuals by length
- age-length key or growth model
- length-weight relationship
- index of abundance and its length structure, or index of biomass (the type of index is left open, it could be from a scientific survey or a commercial CPUE series);

Multi-stage modelling approach

In ecological and population dynamics modeling, one can choose between integrated models, which estimate correlated parameters together, and multi-stage models, which separate estimation into distinct steps.

These approaches differ in complexity, data requirements, interpretability, and their ability to address uncertainties. The selection depends largely on the study objectives, available data, and the system's ecological complexity.

Stock Assessment Process

The following slide breaks down the stock assessment process into three stages.

This breakdown is designed to explain the a4a approach, offering a general framework that outlines the sequence of analyses in the stock assessment process.

Stock Assessment Process

Stage	Description
Input	Preparation of catch data
	Preparation of biological data
	Conversion of length data into age data
Fit	Fitting the model to data
	Inspecting diagnostics: residuals, retrospective, hindcasts
	Fitting the stock-recruitment model
Advice	Estimation of reference points
	Assessment of stock status
	Projections under different scenarios
	Evaluate policy proposals

Table 1: Process Stages and Descriptions

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Questions?