

# MareFrame



## Policy Day

### “Advances in Ecosystem-based Fisheries Management”

Using, comparing and choosing: Ecosystem Models for European fisheries.

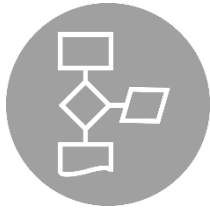
Paul Fernandes, 14<sup>th</sup> December 2017, Brussels, Belgium



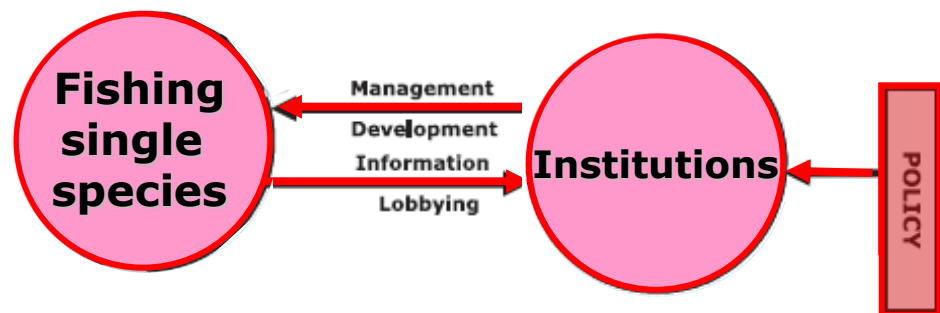
This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no. 613571

# What is an ecosystem model?

**MareFrame**



**Conventional  
fisheries modelling**



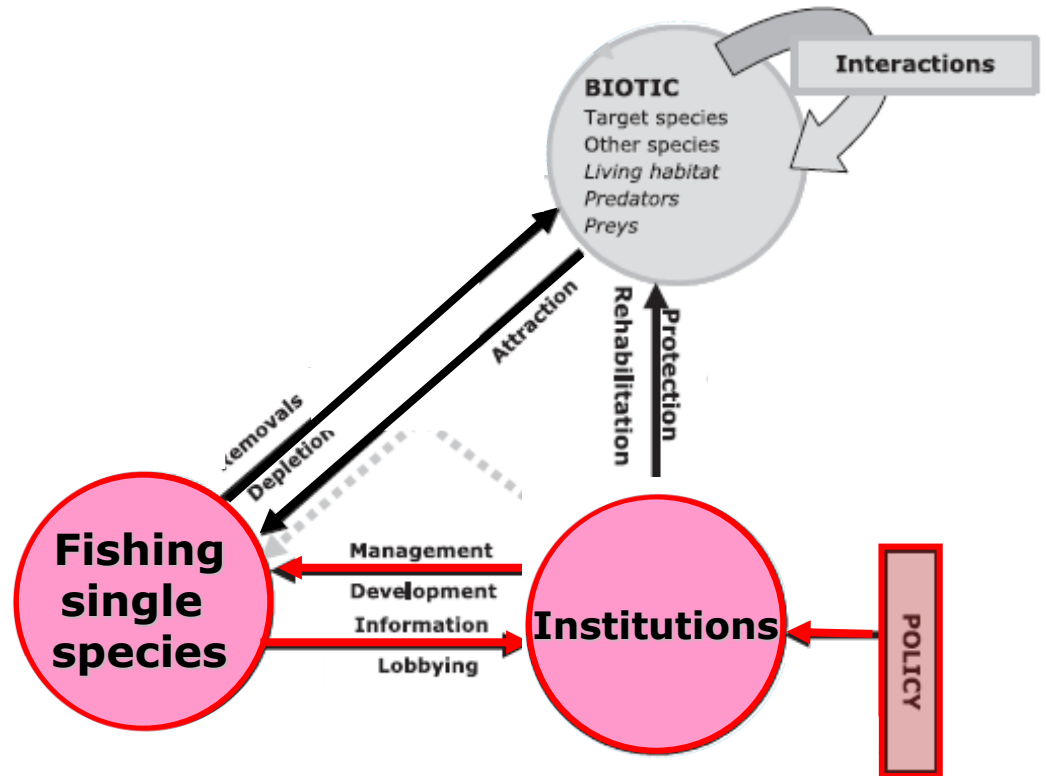
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# What is an ecosystem model?

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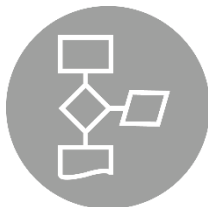
**Multi-species  
modelling**



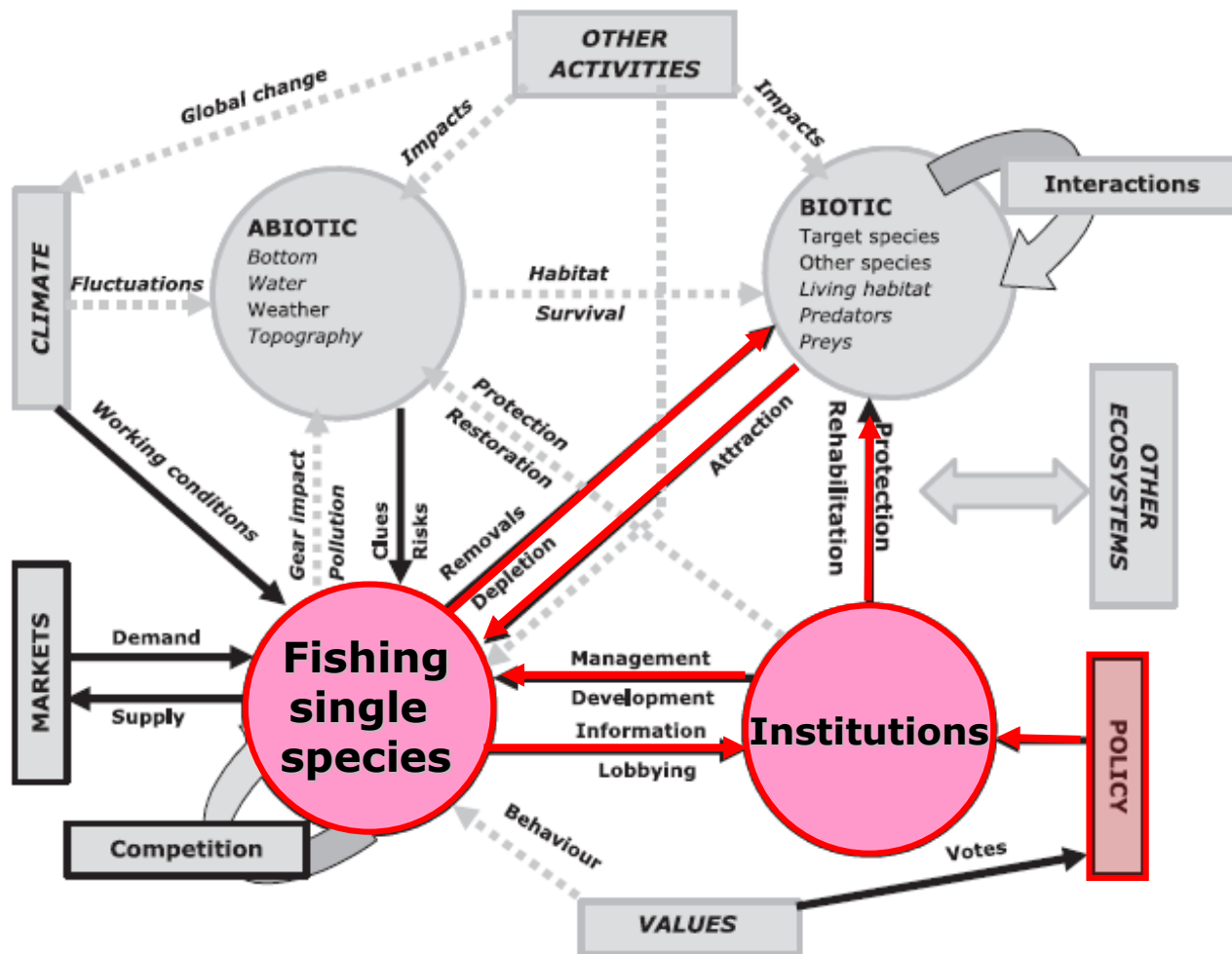
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# What is an ecosystem model?

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## Ecosystem modelling

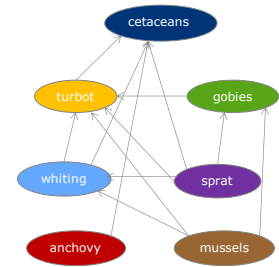
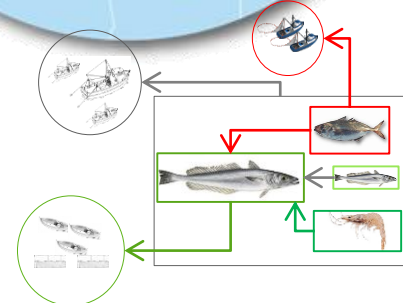
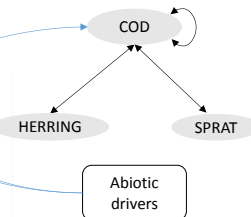
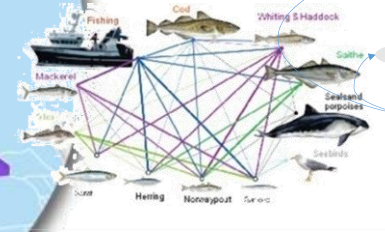
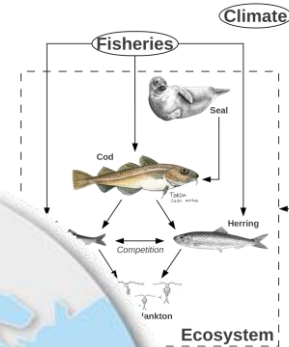
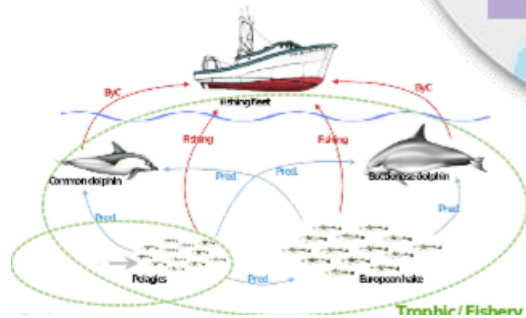
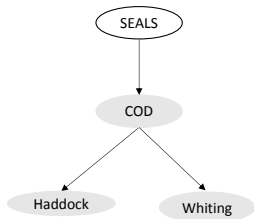
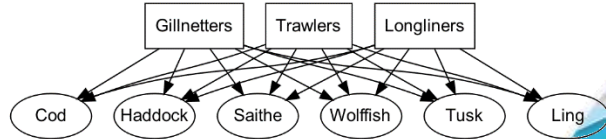


Garcia and Cochrane (2005)



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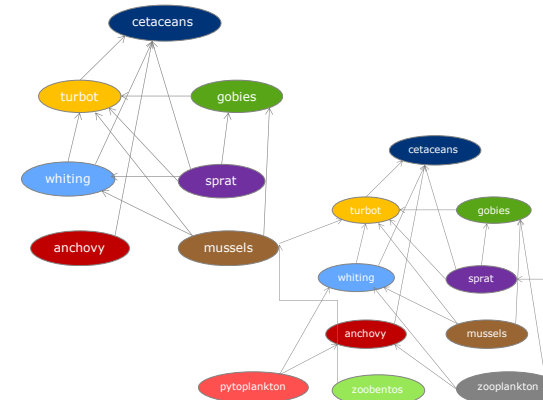
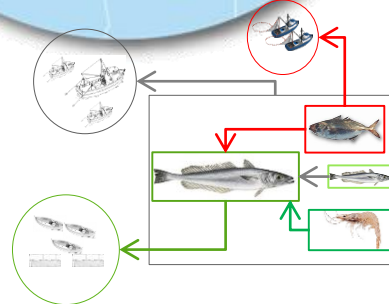
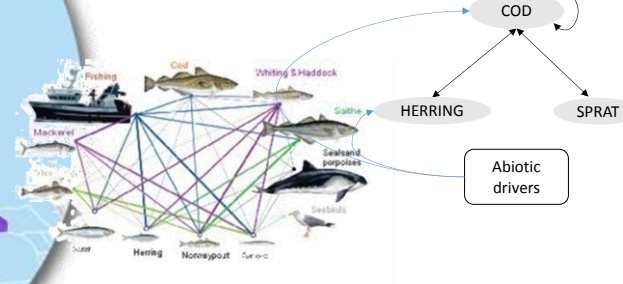
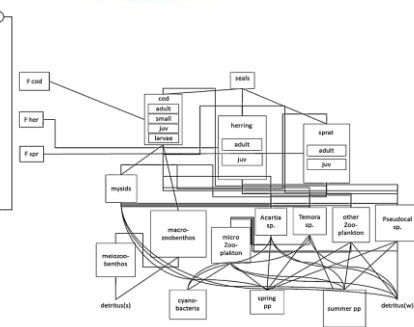
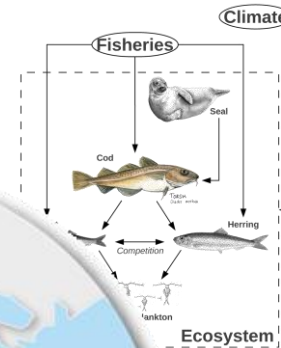
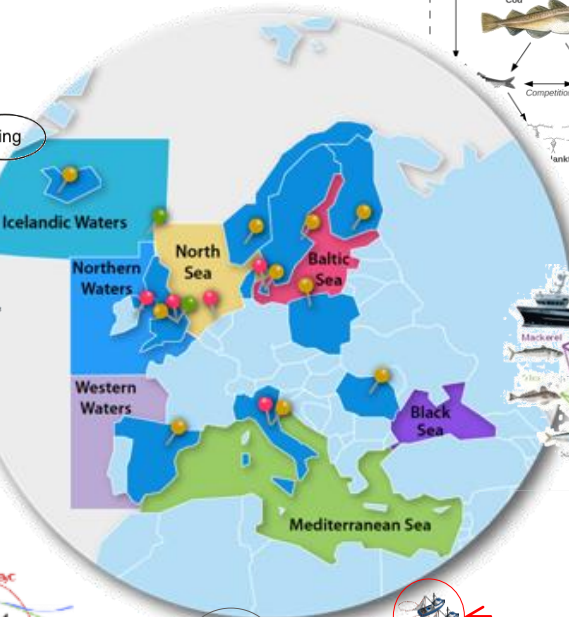
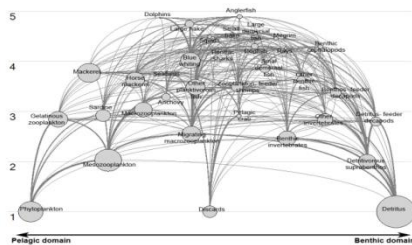
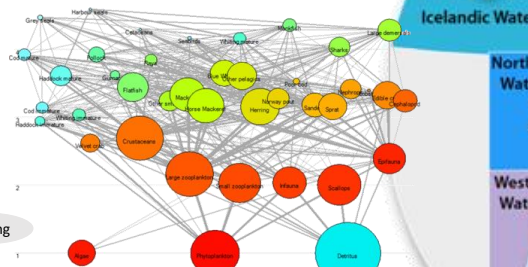
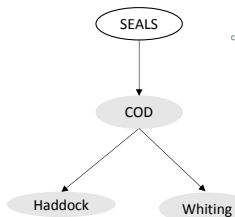
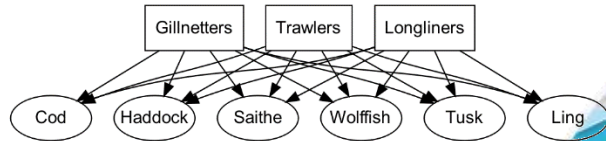
# Using: new multispecies models **MareFrame**



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# Using: new ecosystem models

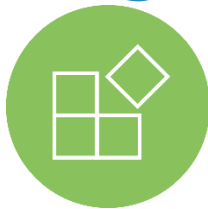
# MareFrame



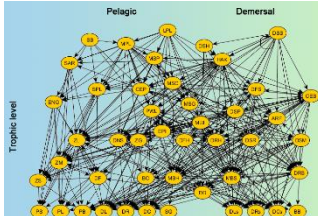
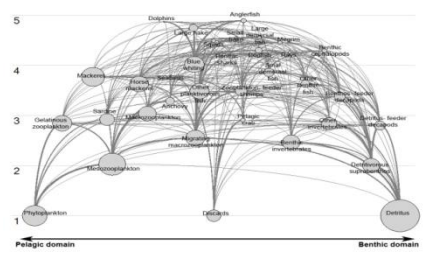
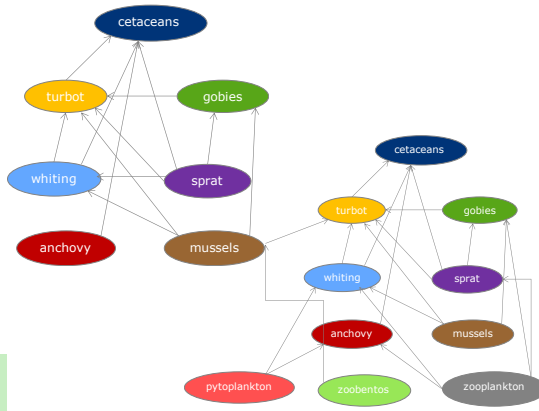
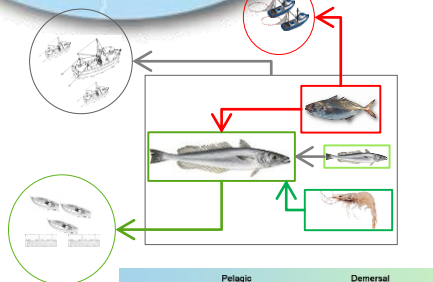
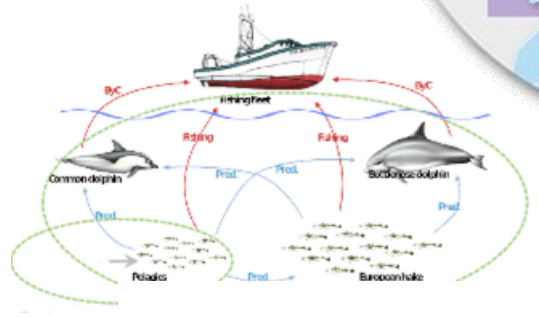
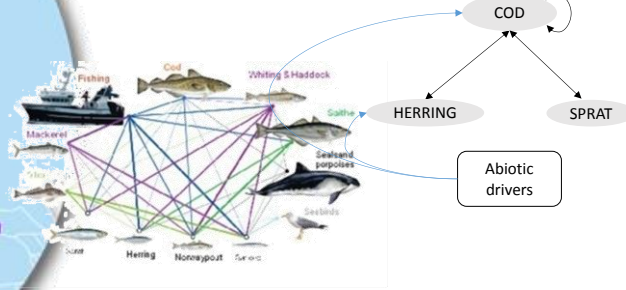
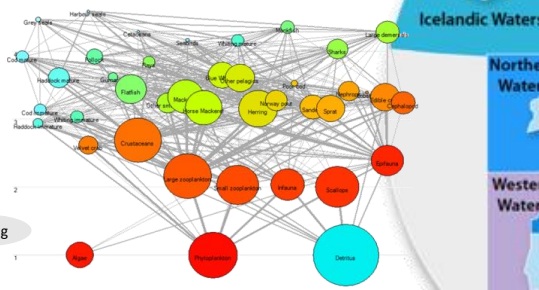
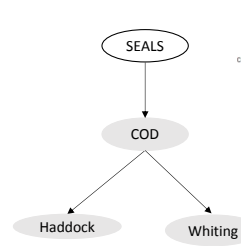
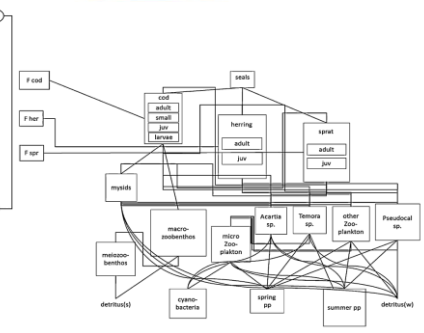
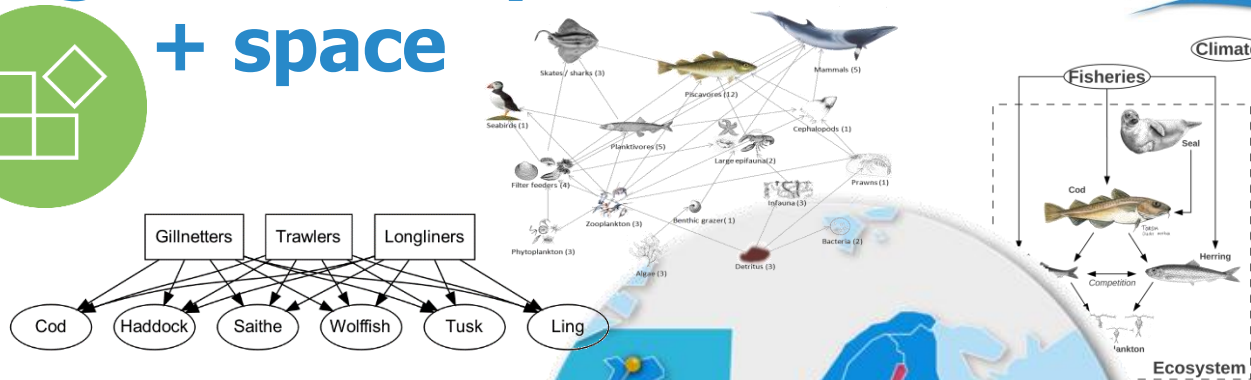
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# Using: new ecosystem models

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+ space



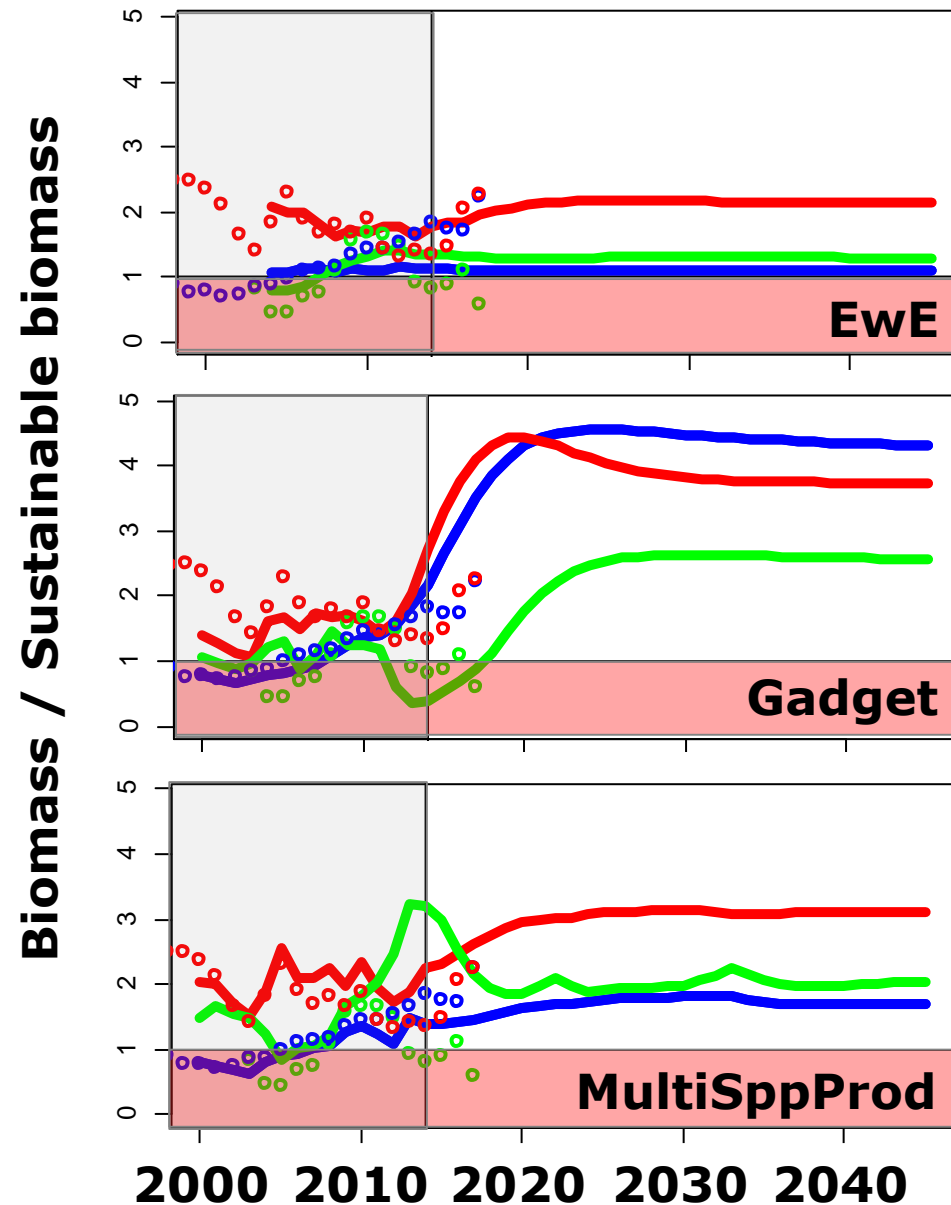
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# Comparing: different models

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- Different models – sometimes different outputs
- E.g. Baltic Sea case, under sustainable fishing
  - **sprat**
  - **cod**
  - **herring**
- Consistent data
- Consistent code
- Protocols for comparison
- DSF uses model ensemble

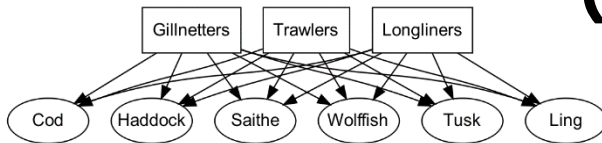




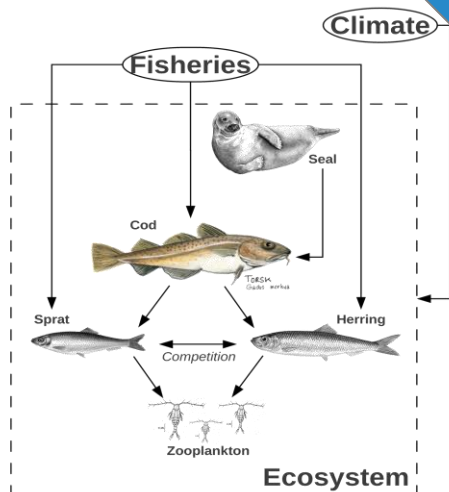
# Choosing: specific models



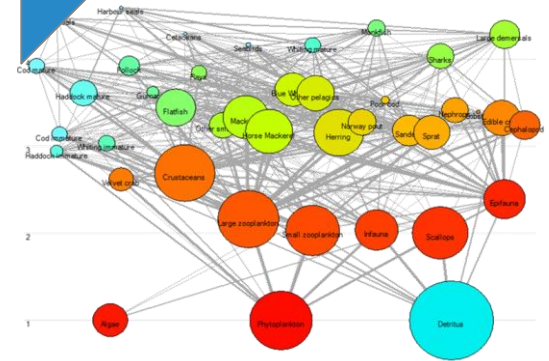
## Tactical (short term)



## CFP



## MSFD



## Strategic (long term)



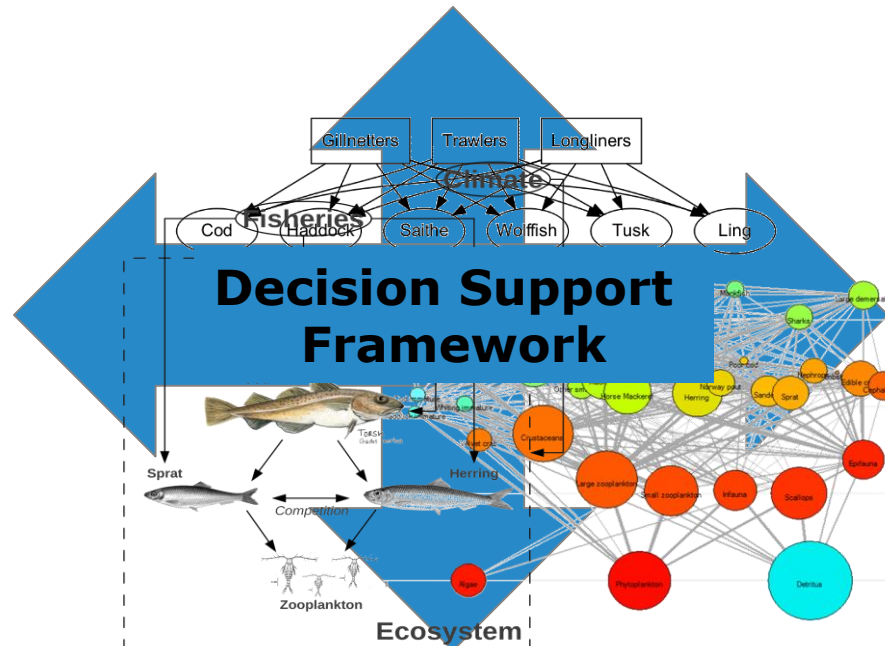
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# Choosing: specific models



## Tactical (short term)

### CFP



### MSFD

## Strategic (long term)

