

# The Need for a Systematic and Iterated Comparison of Different Policy Models

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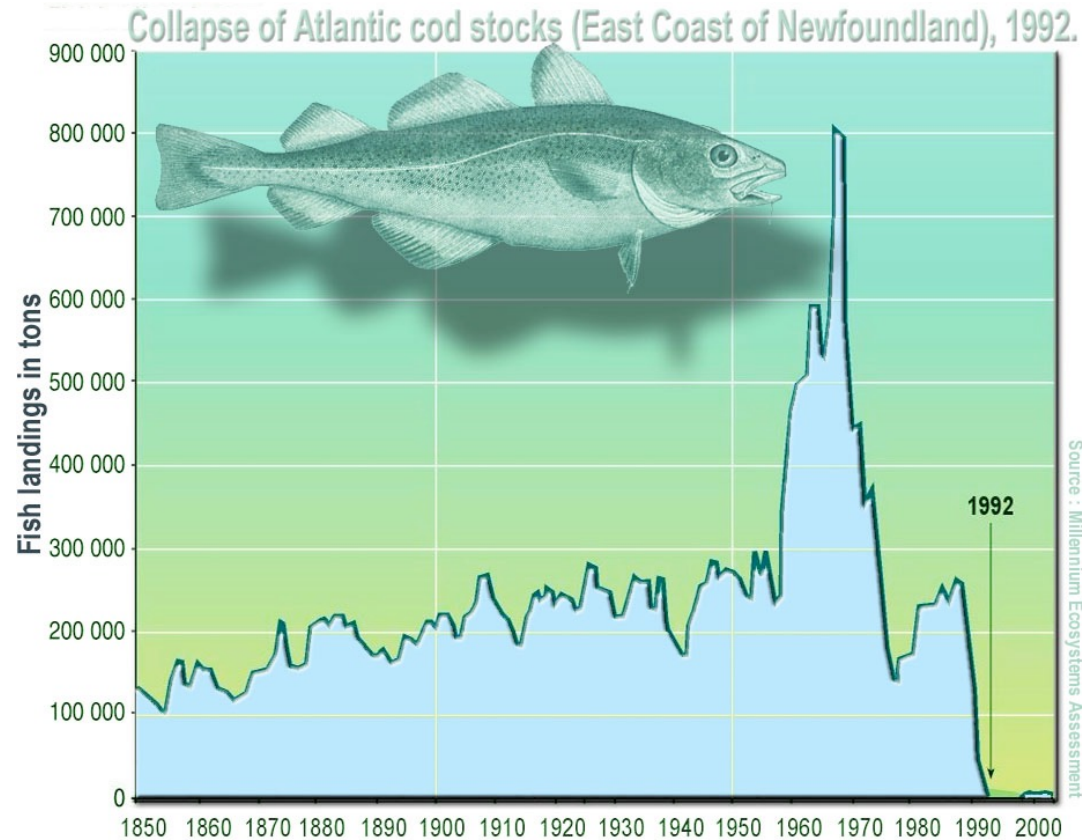
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# North Atlantic Cod Fisheries Collapse

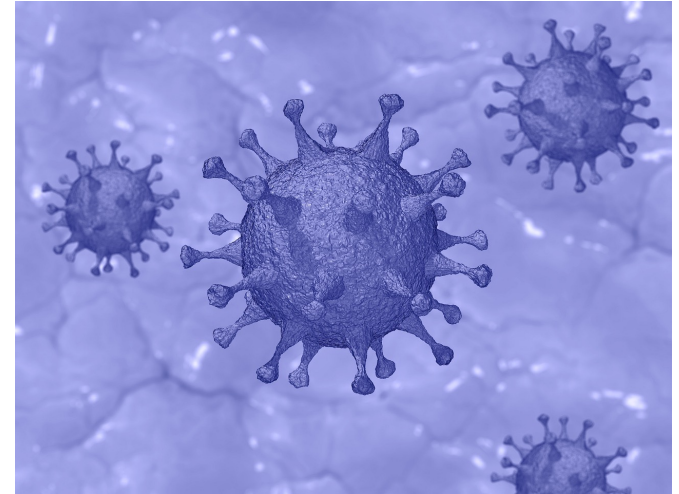
The Harris Commission said that modellers  
said that modellers  
“*...failed to recognize the statistical inadequacies in their bulk biomass model...*”  
and that they had concerns that  
“*...weaknesses in scientific management and the peer review process permitted this to happen.*”



- Models were simplistic
- Focus of models had narrowed
- Excluded input from fishers
- Based on very little data

# Covid Spread Epidemiology

In early 2020, Neil Ferguson + team used a complex model to simulate the spread of COVID19 under a range of scenarios, forecasting 100,000s of deaths in the UK if policies to reduce its spread were not enacted



- This model was influential but ***not*** the sole basis of the subsequent policy change in the UK
- Model was quickly adapted from one 13 years earlier about flu, consisting of “*thousands of lines of undocumented C*” not made public at the time
- So had not been critiqued and developed by the community of other researchers since then

# Some Dangers of Policy Modelling

1. People who develop a model tend to get engrossed in it and not see the weaknesses – a strong form of “Kuhnian Spectacles”
2. Models are increasingly complex so hard to completely understand and analyse
3. Policy modelling is often made on a largely theoretical basis, not tested against data
4. Different models make different assumptions
5. Some models developed over short time scales
6. Models often made on a ‘one-off’ basis

# Model comparison projects (MIP)

(Such as those over many decades on climate change)

- Allow modellers to build on the past rather than re-inventing the wheel
- Encourages the independent reproduction and analysis of existing models resulting in their being better understood
- Helps to determine which kinds of models are better for which aspects of problems or what kinds of situation they are applicable in
- A continuously updated and refined base of models helps build credibility
- Forms a more credible and robust basis from which to inform policy

# Conclusions

- A policy model that has not been ***independently replicated*** is not a reliable model
- Good policy models take ***many iterations of development*** to improve
- A ***variety of models***, each with different approaches, assumptions gives an idea of what kinds of approach work in what kinds of situation
- Better understanding of the ***empirical track-record of models*** is needed – do not rely on a purely theoretical model
- We need to ‘get our act together’ and ***organise long-term systematic model comparison*** for any application in policy sensitive areas

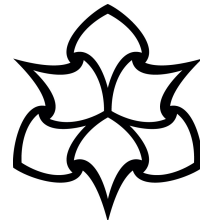
# Thanks for your attention



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These slides and papers that go with this presentation can be found on the page:

<http://cfpm.org/model-comparison>