



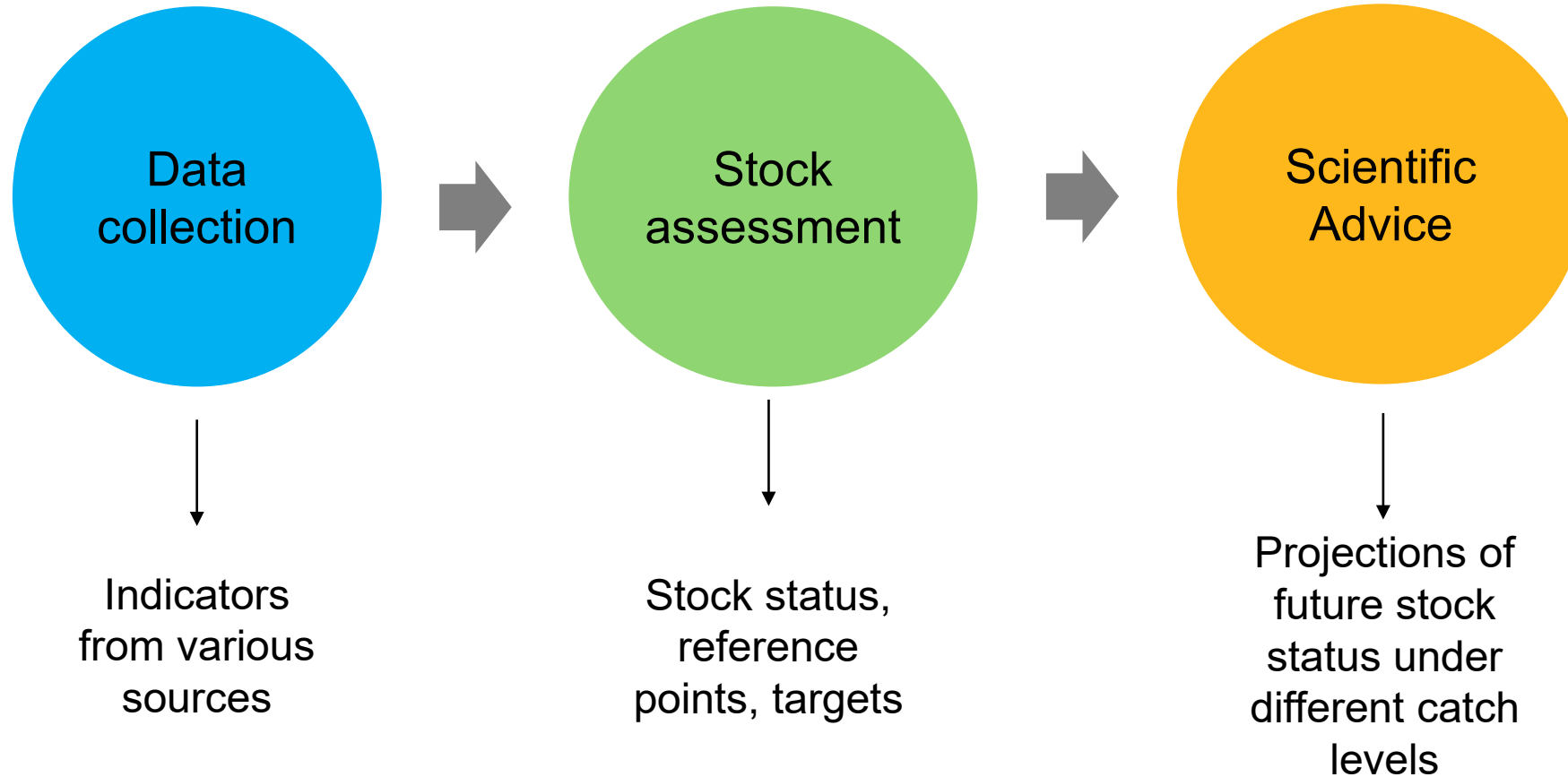
SCIENCE AND
EDUCATION **FOR**
SUSTAINABLE
LIFE

From data to advice

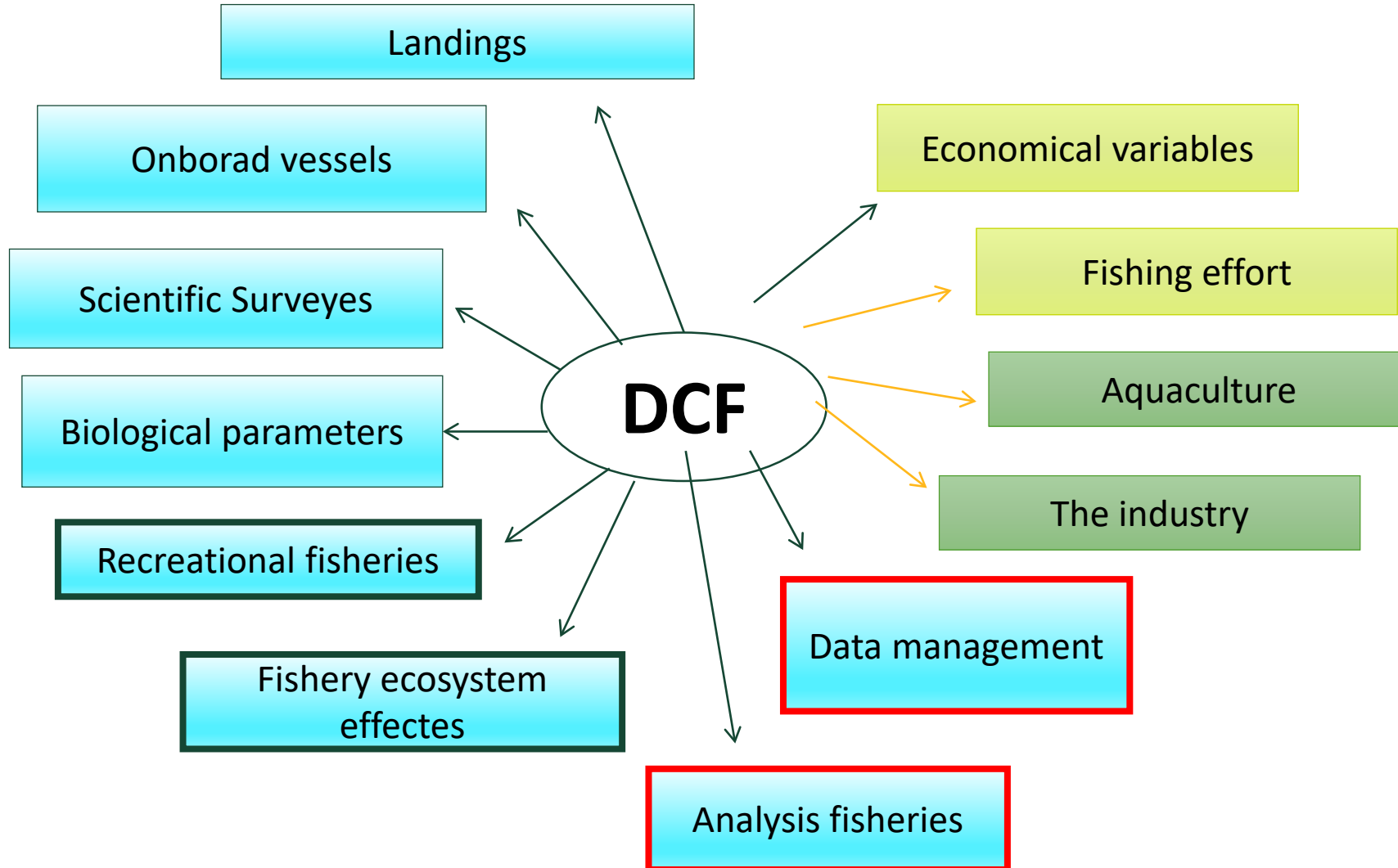
Some examples from the Baltic sea

Joakim Hjelm,
Swedish University of Agricultural Sciences, Department of Agricultural
Sciences, SLU Aqua Lysekil Sweden.

The chain of data to advice



Data collection framework (DCF)



Stock assessment - what can go wrong?

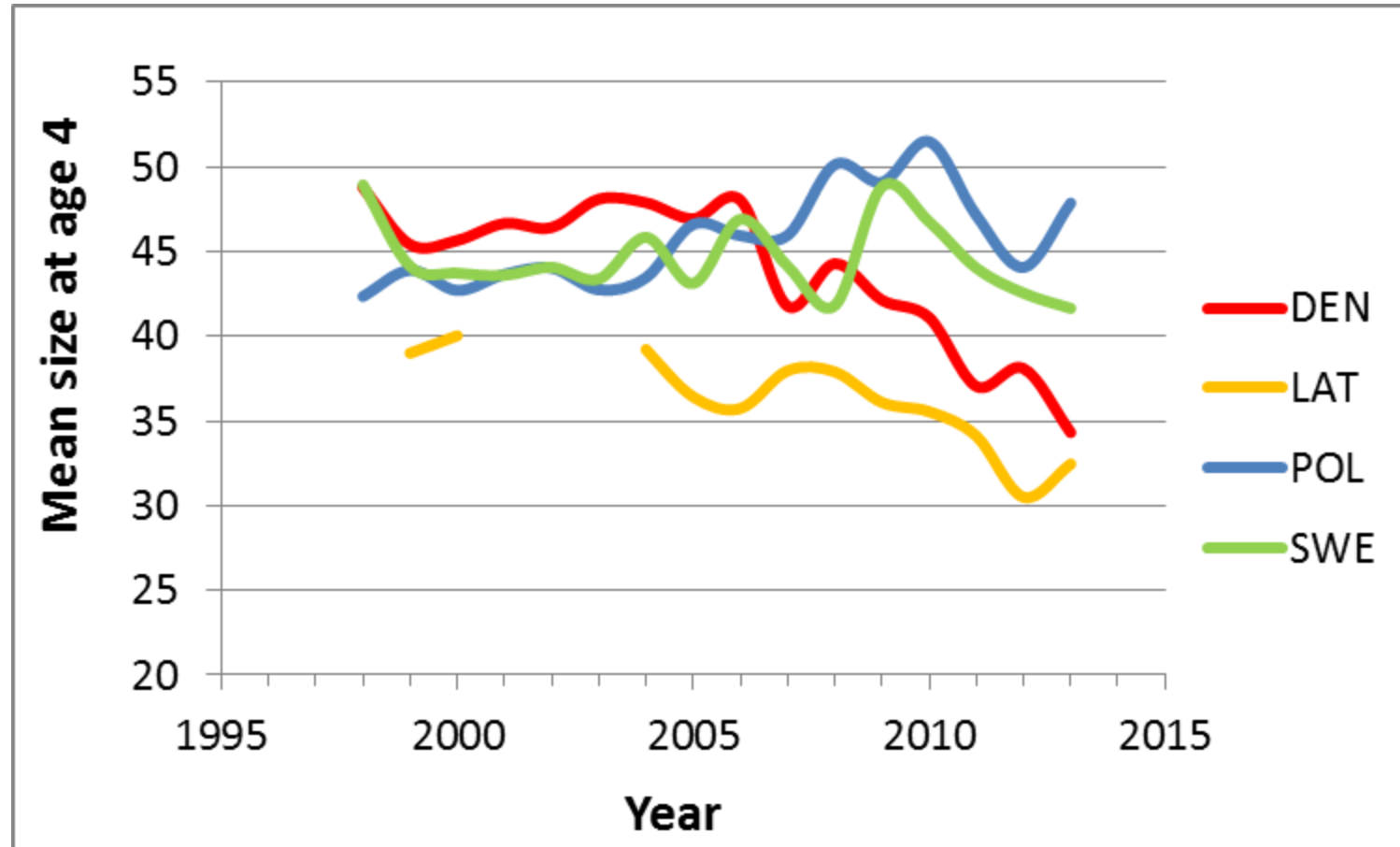
- Input data
 - Catch
 - Survey index
 - Growth
 - Aging
 - Distribution
 - Biological impact
- Assessment models
 - Mortality
 - Fishery mortality
 - Recruitment



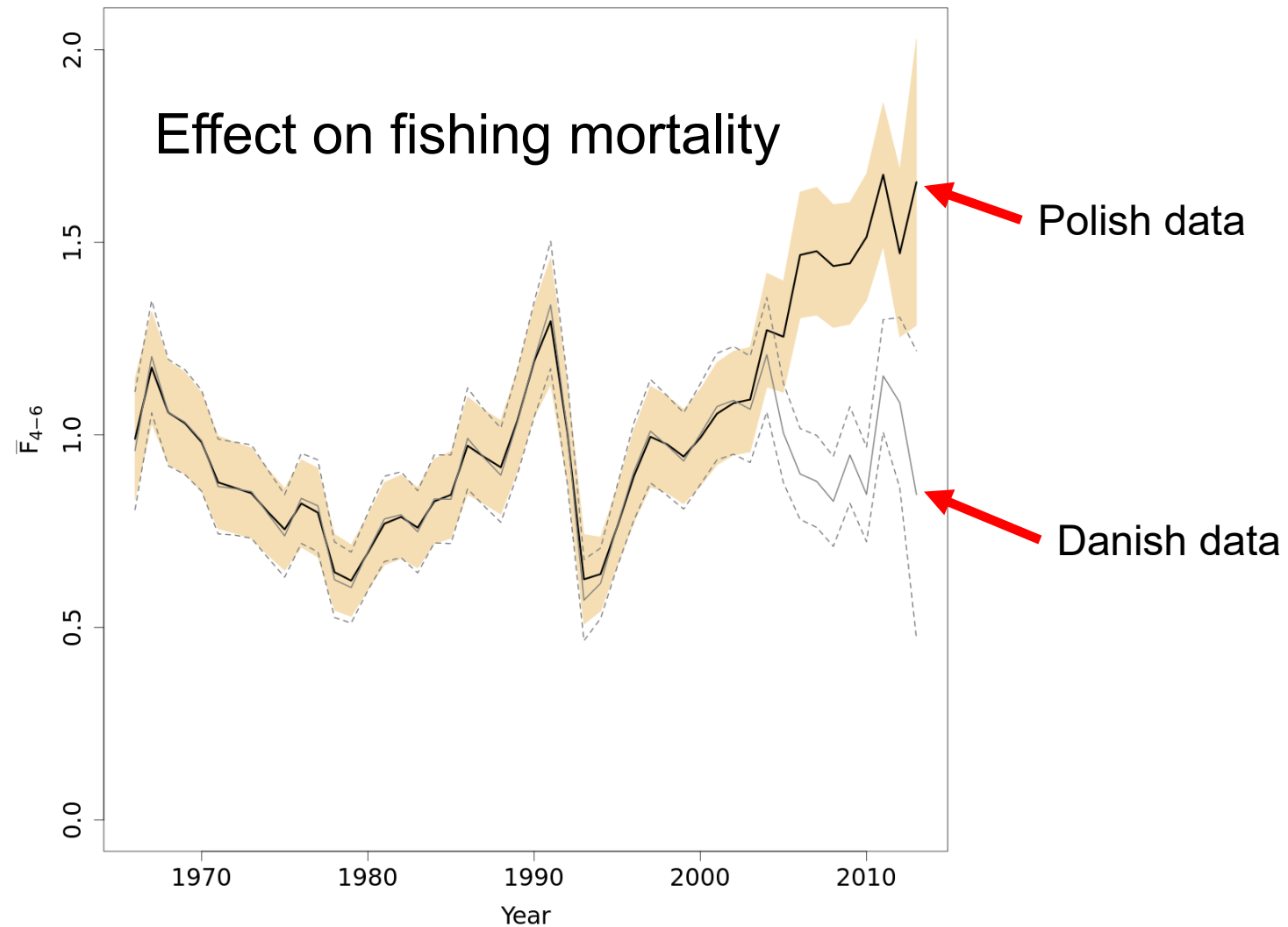
Eastern Baltic cod (SDs 25-32) Historical assessment



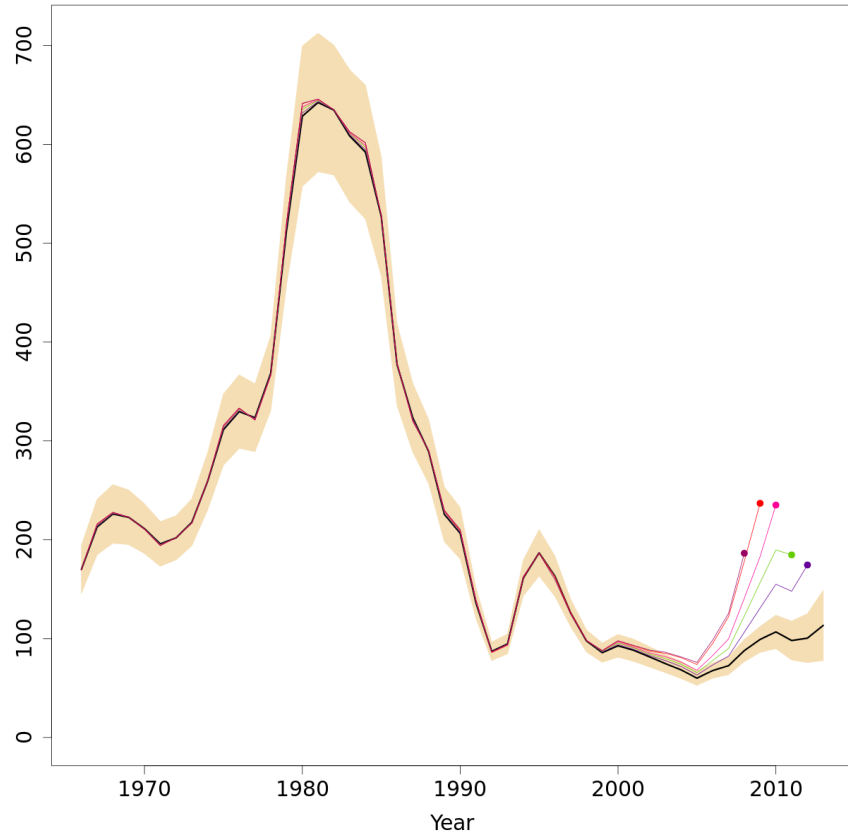
Eastern Baltic cod - Growth



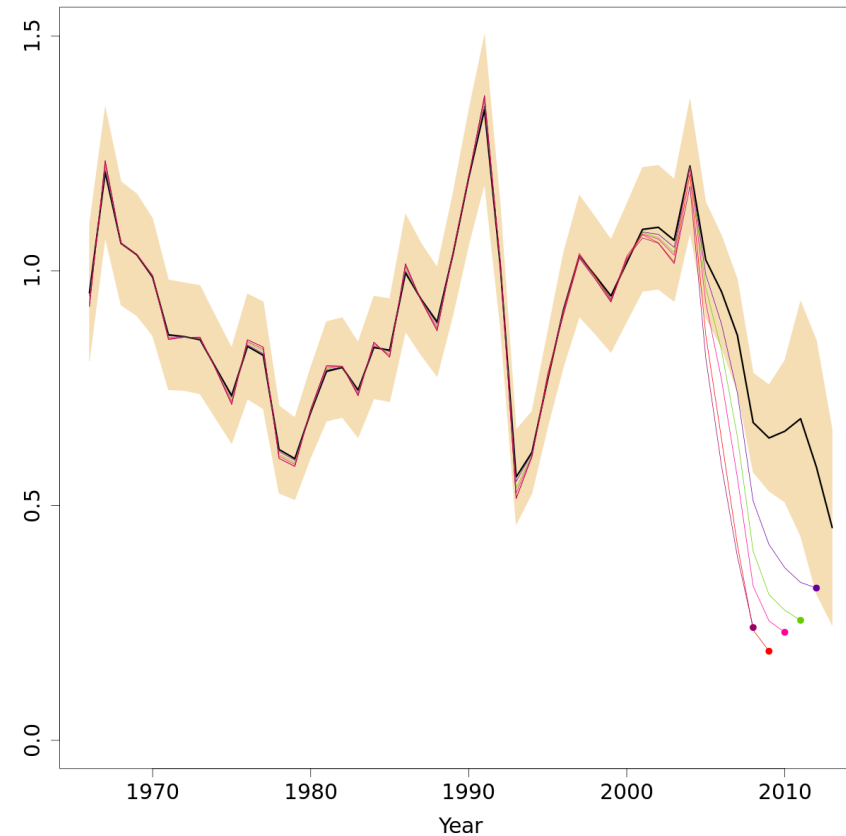
Eastern Baltic cod - Ageing



Eastern Baltic cod – Assement 2014

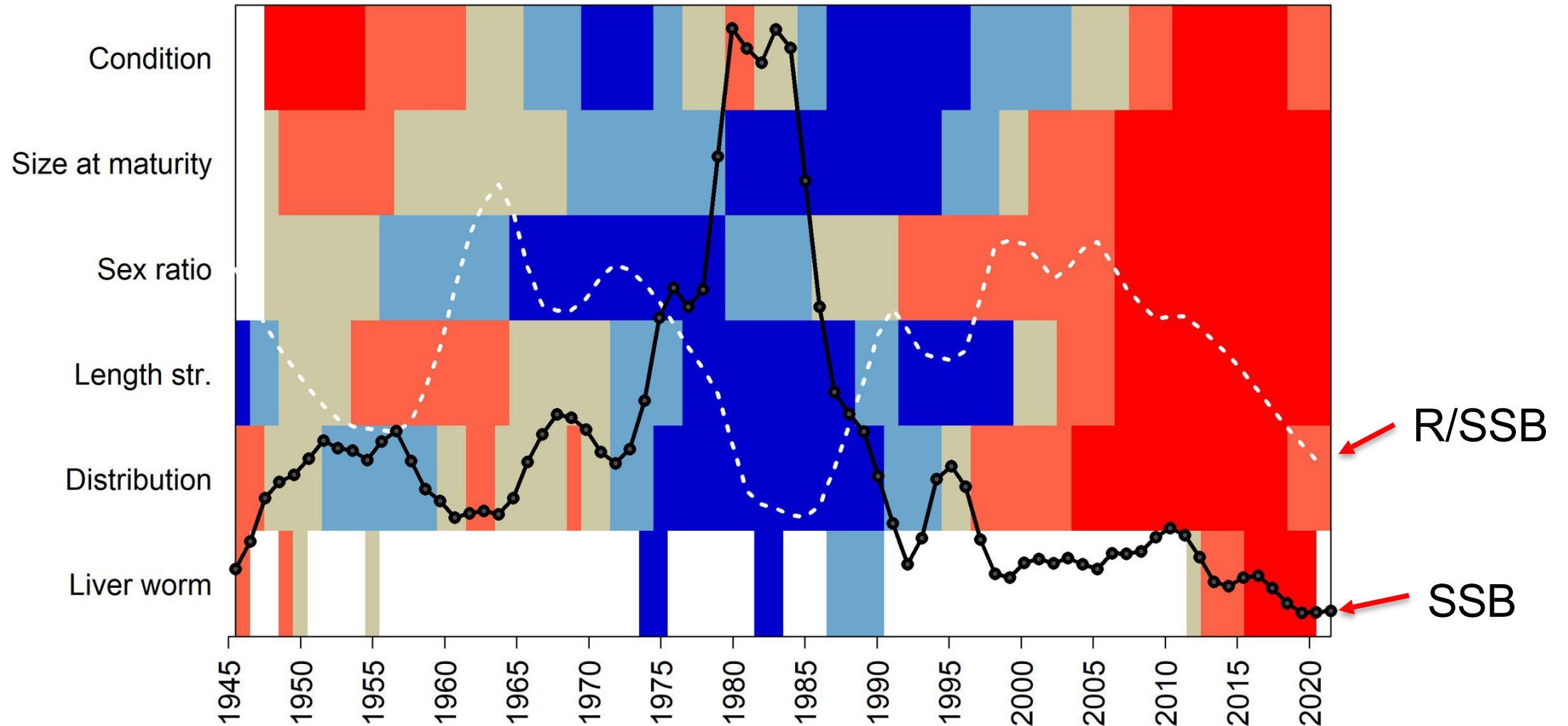


Spawning stock biomass



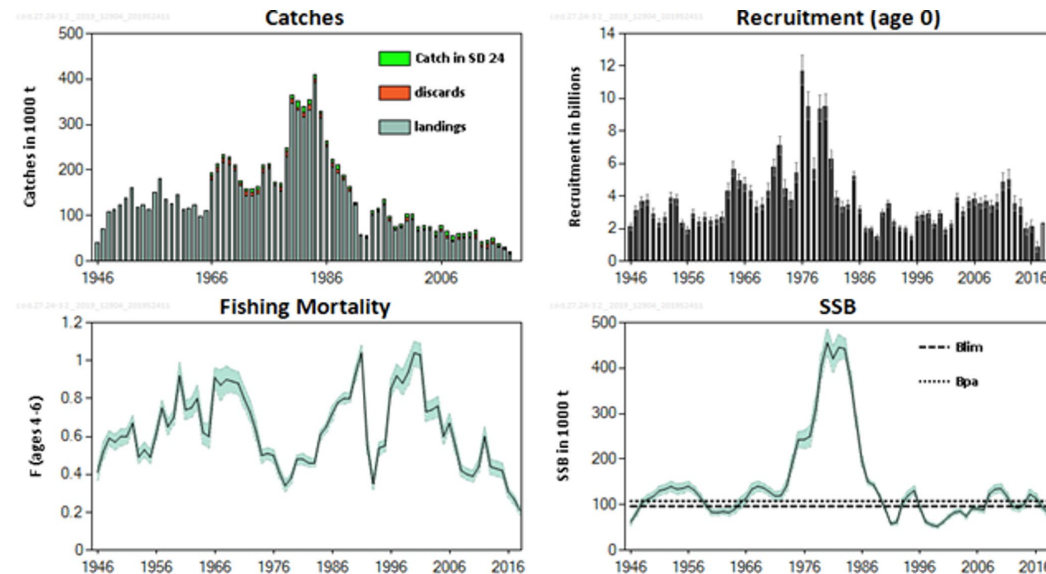
Fishing mortality

Eastern Baltic cod – biological changes



Eastern Baltic cod – Development

- First Benchmarked in 2015
 - However, we did not succeed in having a new accepted model (growth)
- Benchmarked 2016
 - Included SD 24
- Full analytical assessment 2019



Assessment and how its developed into advice

- We spot changes in data or model assumptions that may have violated.
- Is this a “real” problem or a consequence of a “changing environment”?
 - Flag for a benchmark!
 - Update the assessment but can still affect the advise quite considerable

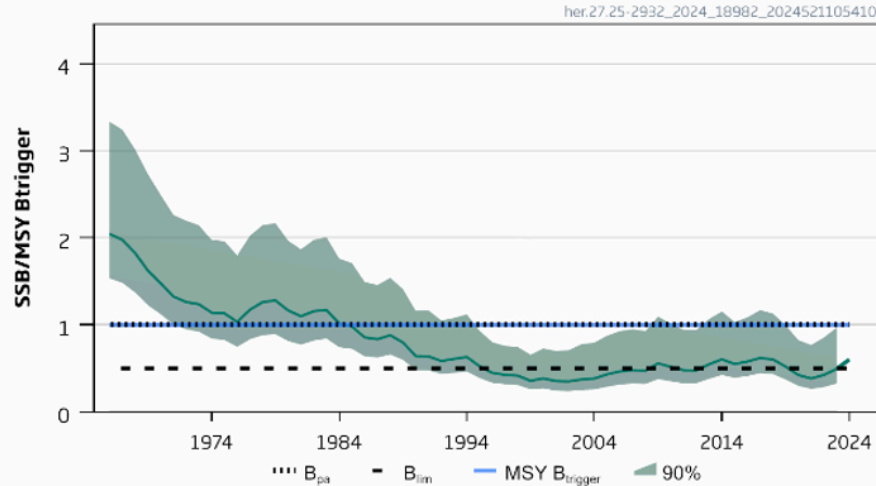


Central Baltic Herring

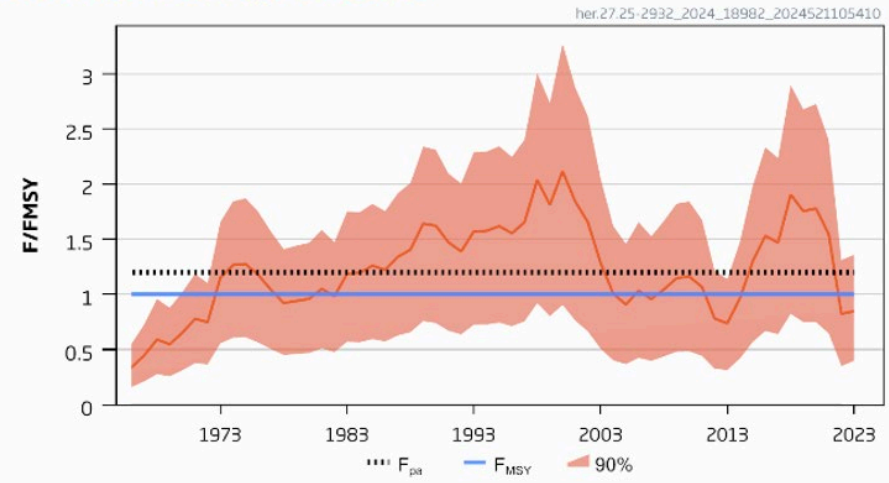
SDs 25-27, 28.2, 29 och 32



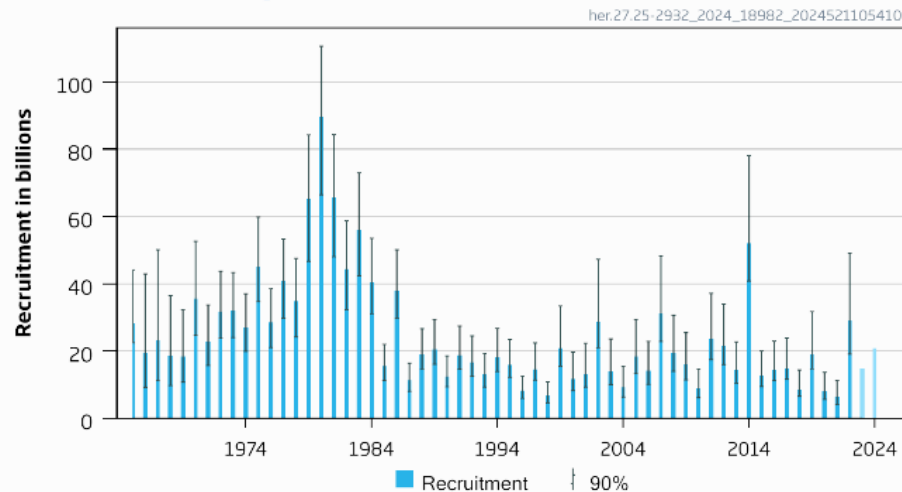
Relative Spawning Biomass



Relative Fishing Pressure



Recruitment (age 0)



Advice 2025

Fmsy = 125 344 t

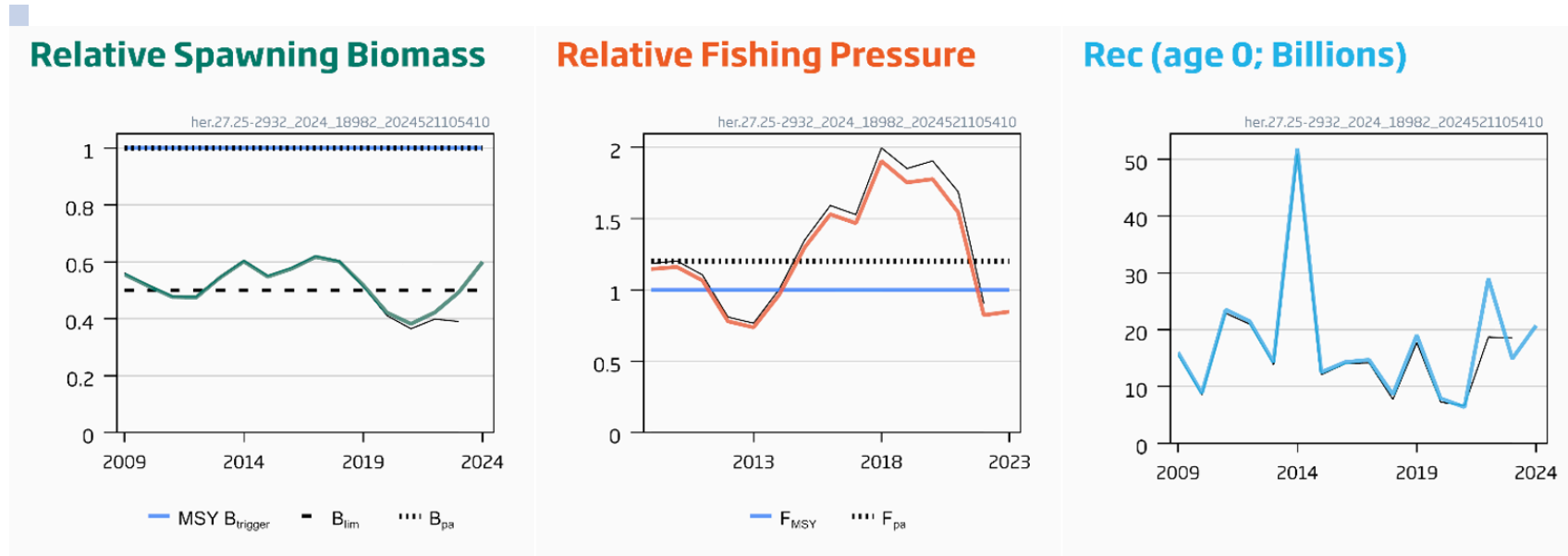
+ 139 % (4,9 % risk to be under Blim)

Råd 2024

- 45 % (31% to be under Blim)

Central Baltic Herring

SDs 25-27, 28.2, 29 och 32



Why did the advice increase by 139 %?

- Lower catches the last 3 years
- Good recruitment 2022 (underestimated 2023)
- Upscaled stock size
- Higher ratio between SSB and $MSY B_{trigger}$

ICES assessments – final thoughts

- We use the data that is available and that we trust
 - Best practice
- A change in our perception of the stock doesn't mean that we did it wrong last time...
 - Just that we updated the available information!
- Head-line advise is not whole story!
 - The uncertainty needs to be considered...



Thank you for your attention

Joakim Hjelm, Department of Aquatic resources, SLU

joakim.hjelm@slu.se

SCIENCE AND
EDUCATION
**SUSTAINABLE
LIFE**

