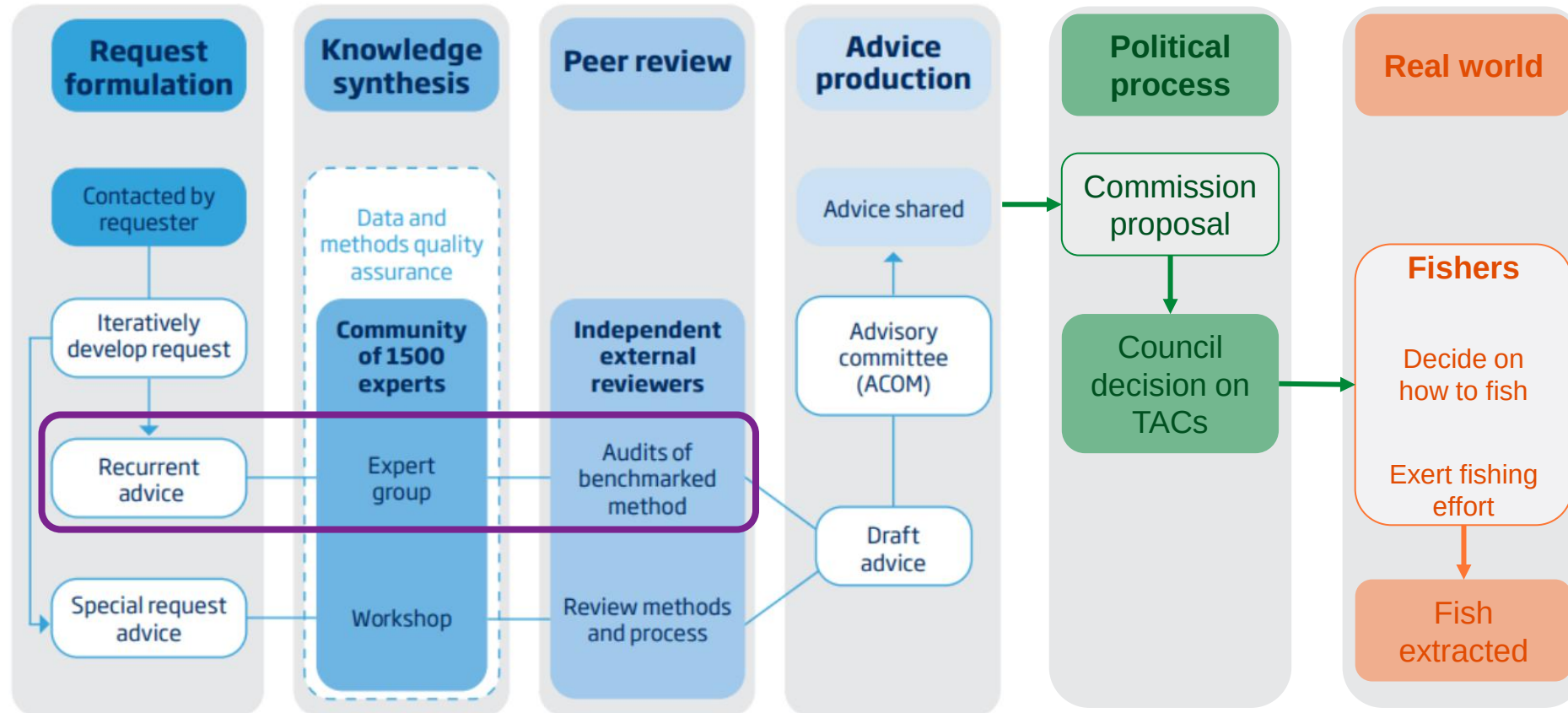


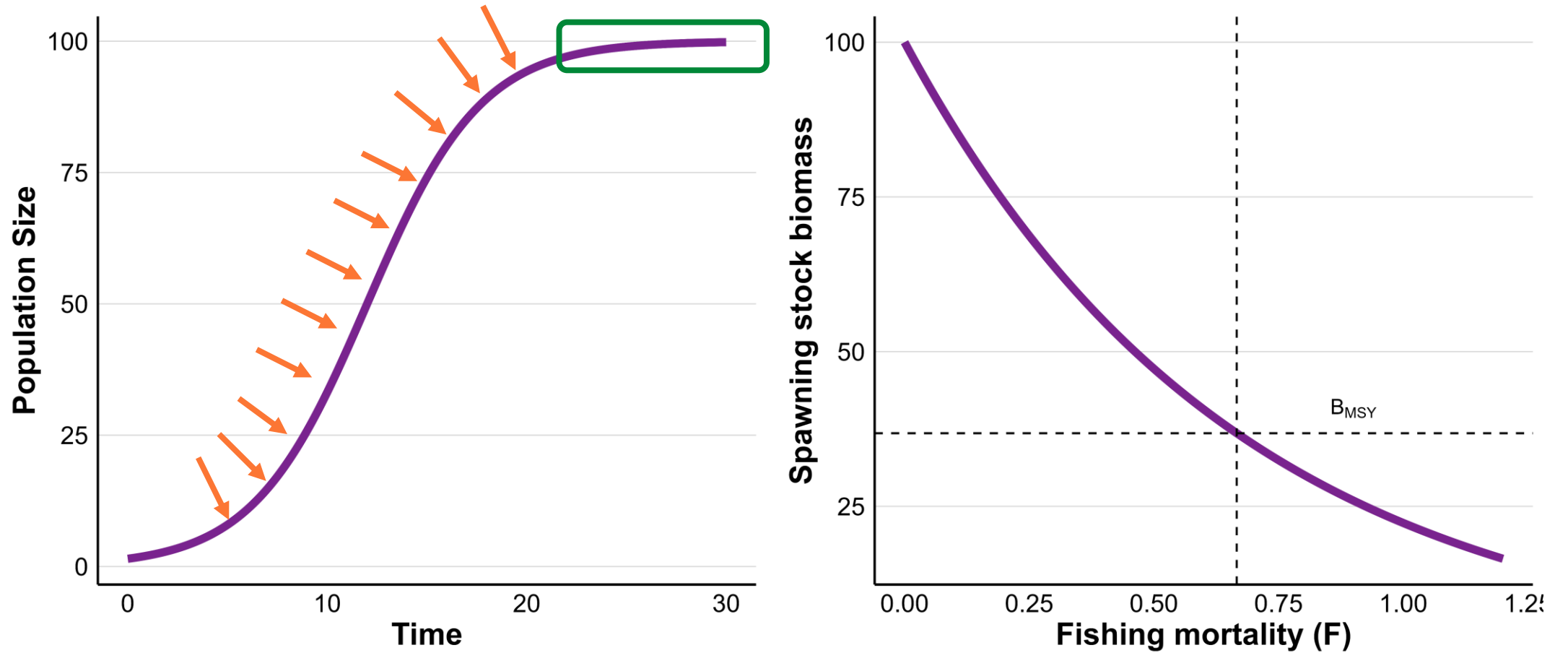
Overview from the Baltic Sea

Stock Assessment to Advice

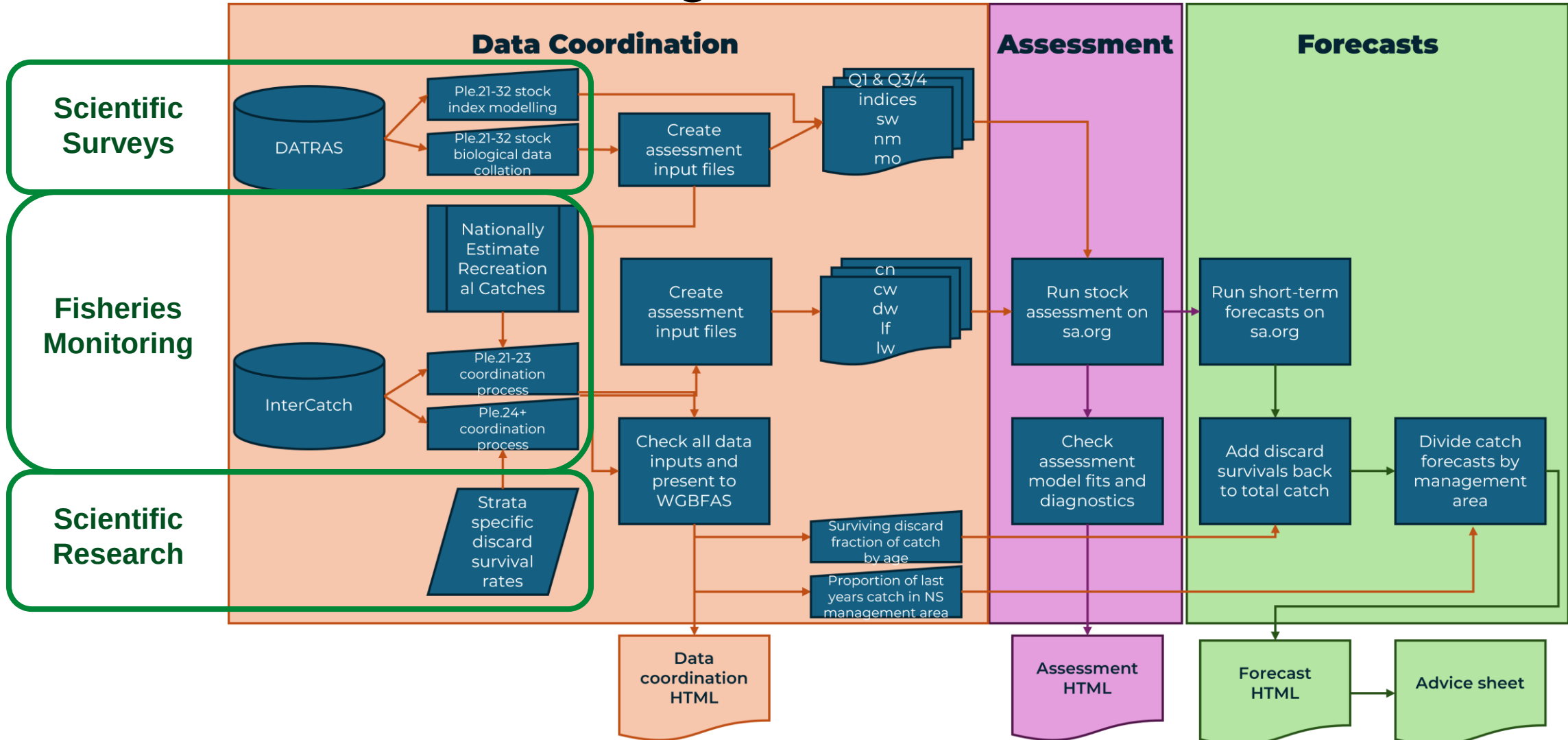
The Production of Advice



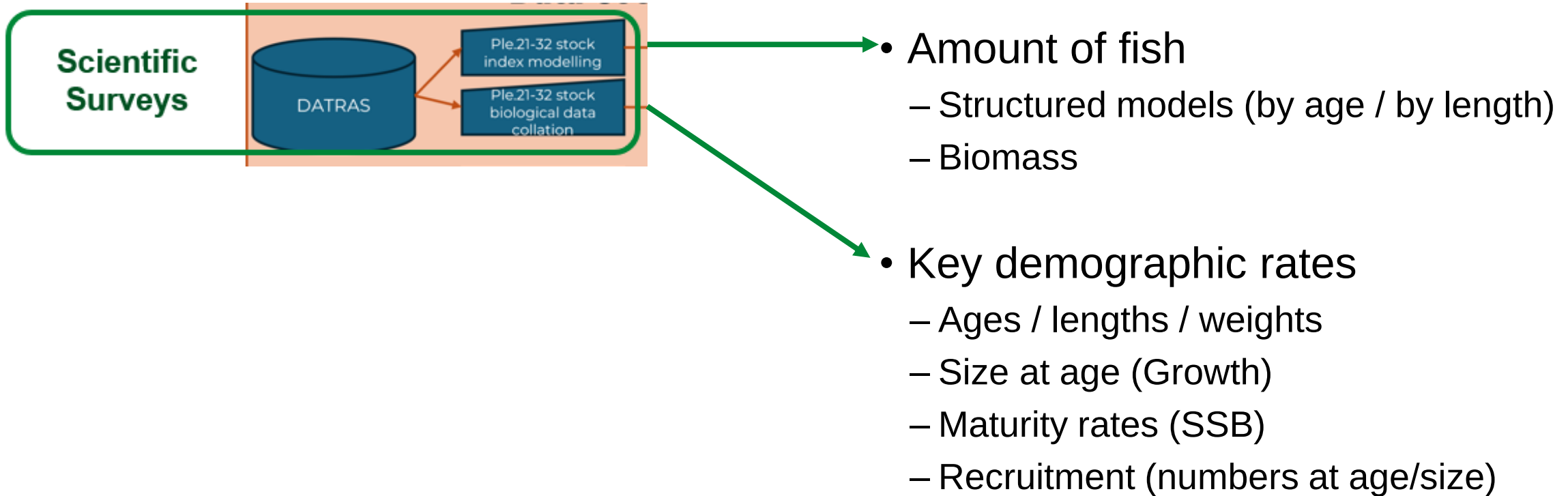
The Basis of Fisheries Assessment



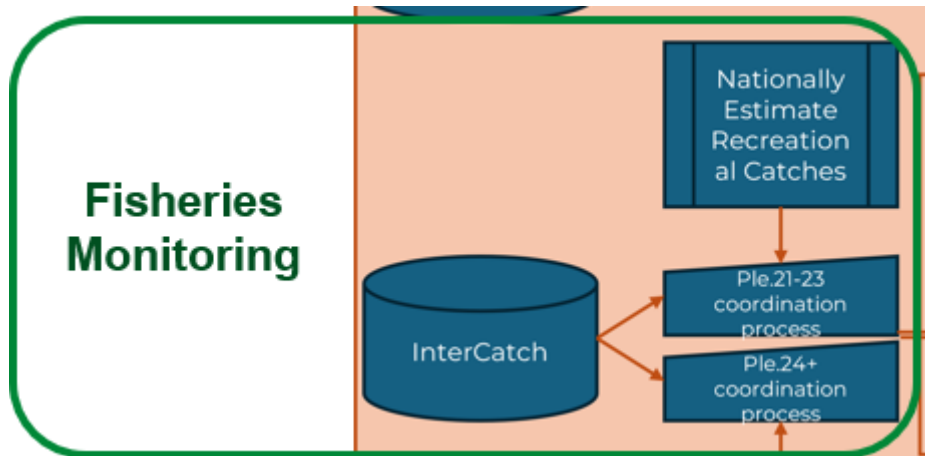
The Inner Workings of Assessments



The Inner Workings of Assessments

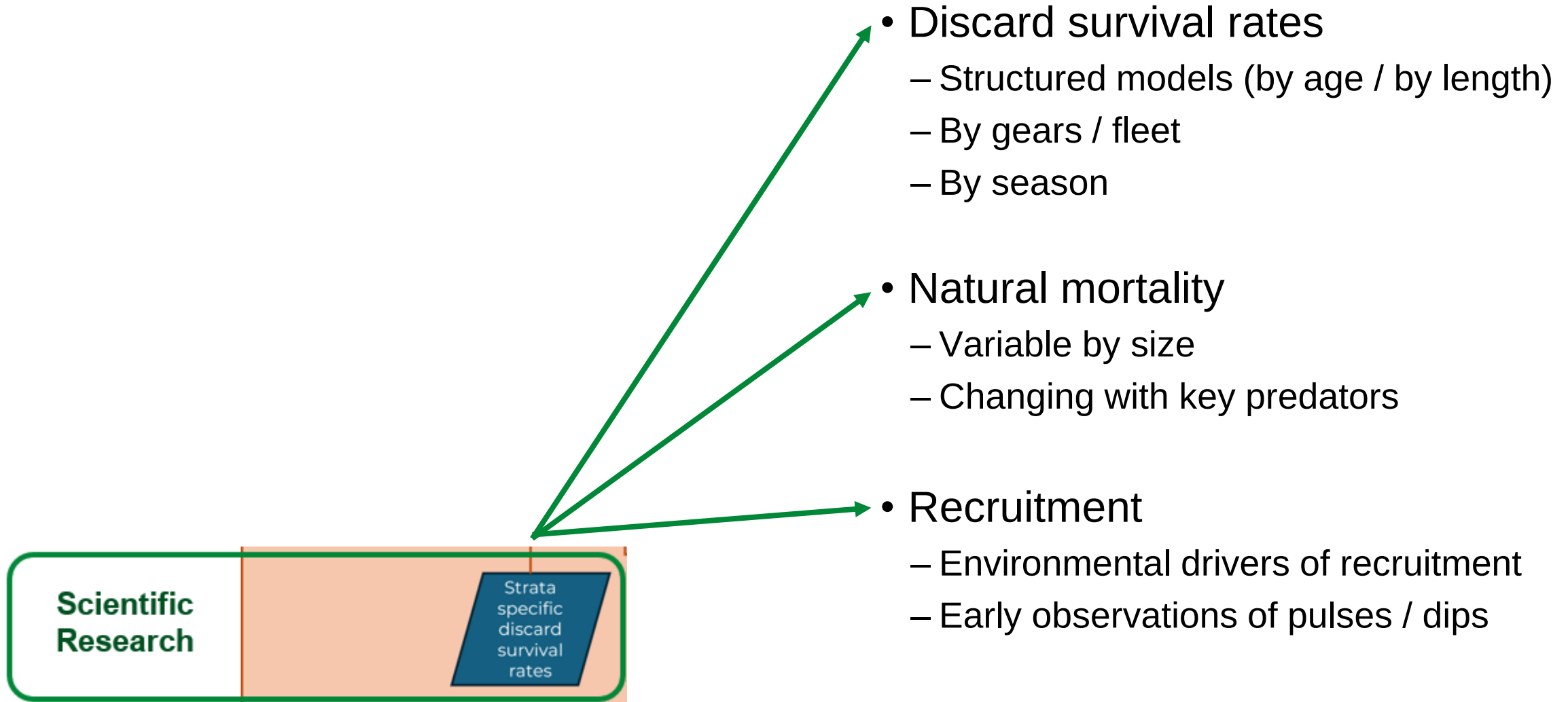


The Inner Workings of Assessments

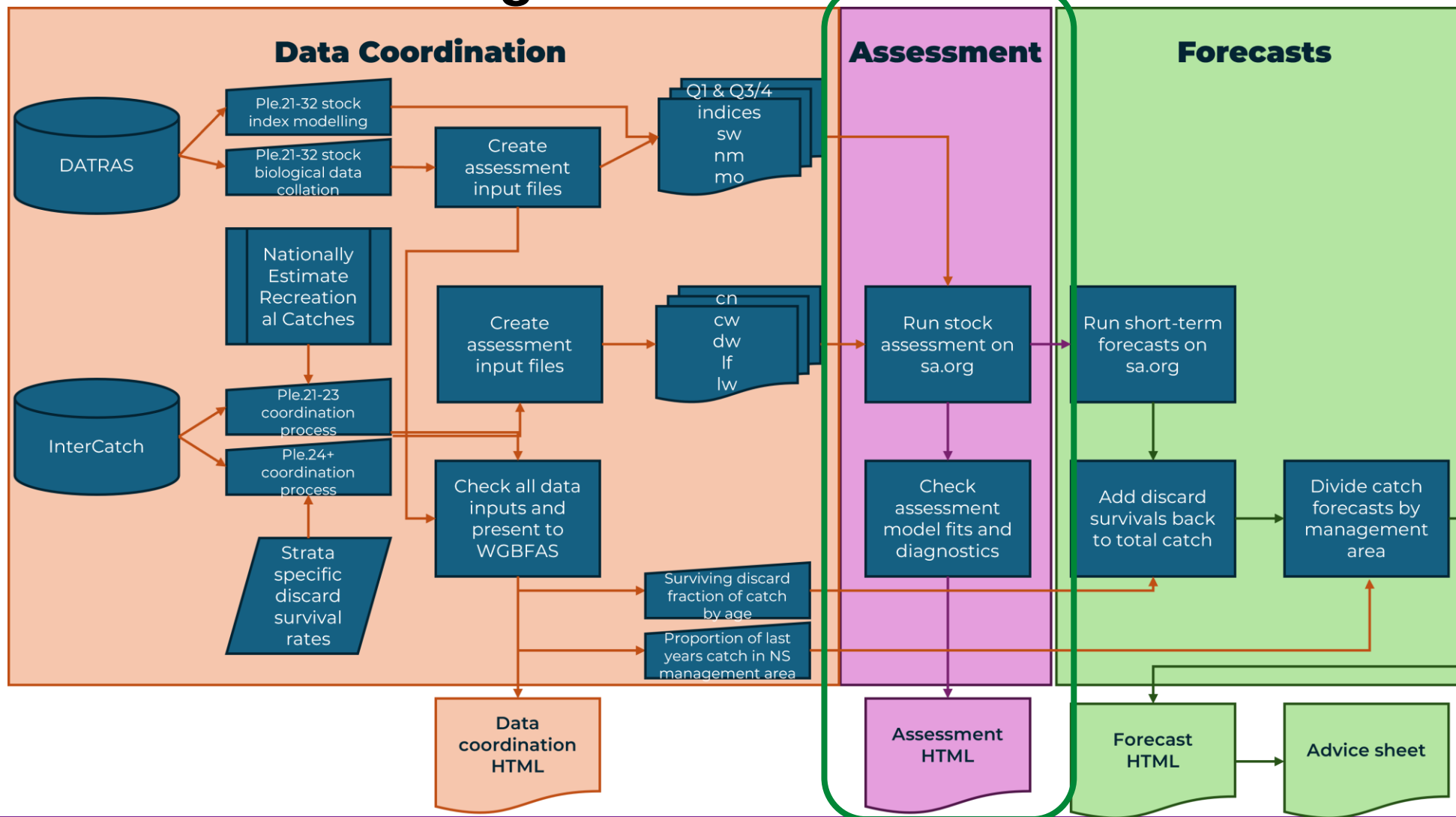


- Amount of fish caught
 - Structured models (by age / by length)
 - Biomass
 - Landing vs discard rates
- Combinations of fleets / management areas
 - Different selectivities (by size)
 - Different discard rates and survivals

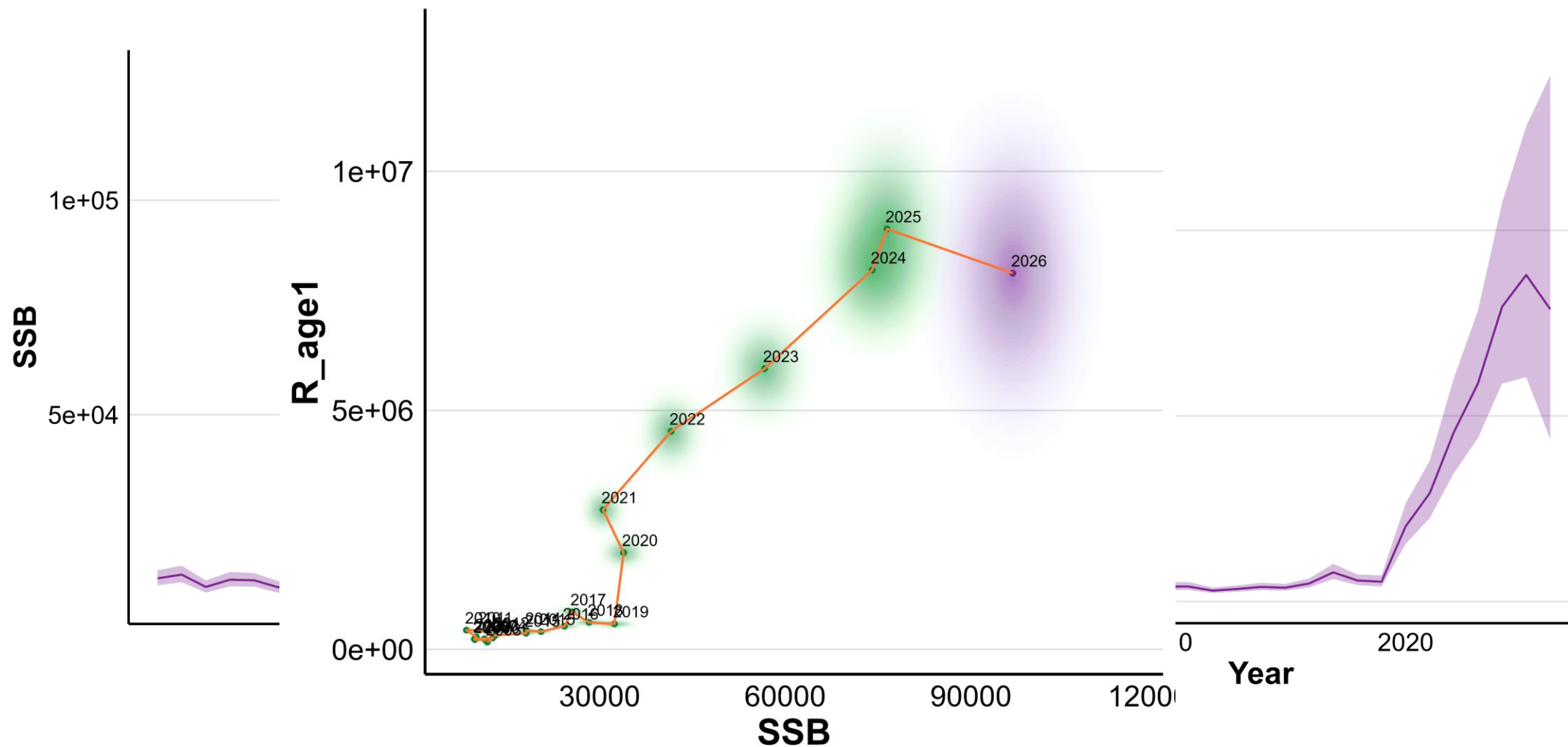
The Inner Workings of Assessments



The Inner Workings of Assessments



The Inner Workings of Assessments



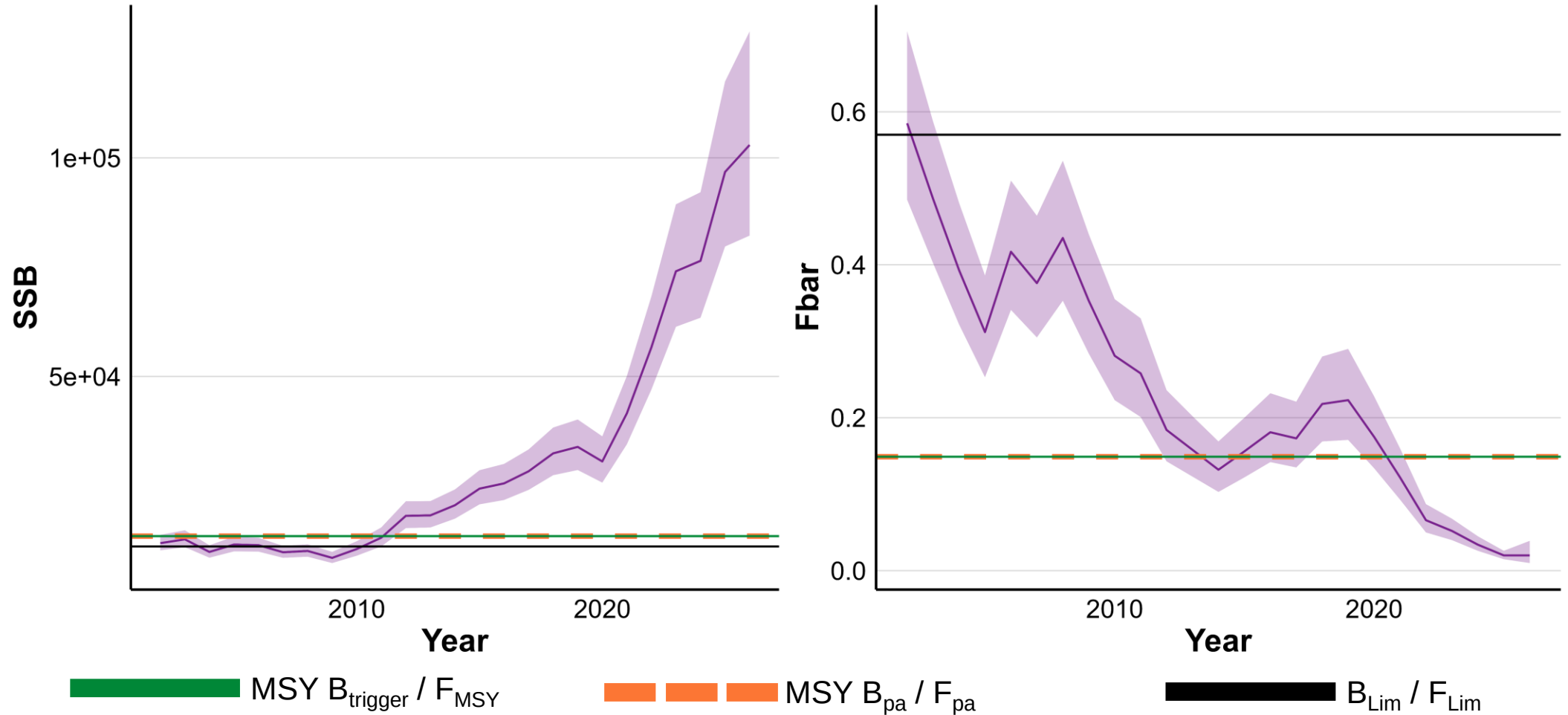
Assessment Targets / Limits: Reference points

- Fishing Pressure
 - F_{MSY} : A wobbly target
 - A rate of exploitation for a given amount of fish
 - Has a corresponding Biomass (B_{MSY})
 - Relatively small change under changing environmental carrying capacity.
 - Less wobbly when estimated under age-structured medium term simulations
- Biomass of reproductive stock
 - B_{MSY} : A moving target
 - An absolute amount of fish remaining in the sea
 - Estimates more variable and sensitive to changes in environmental carrying capacity
 - Estimates more sensitive to methodological decisions

Assessment Targets / Limits: Reference points

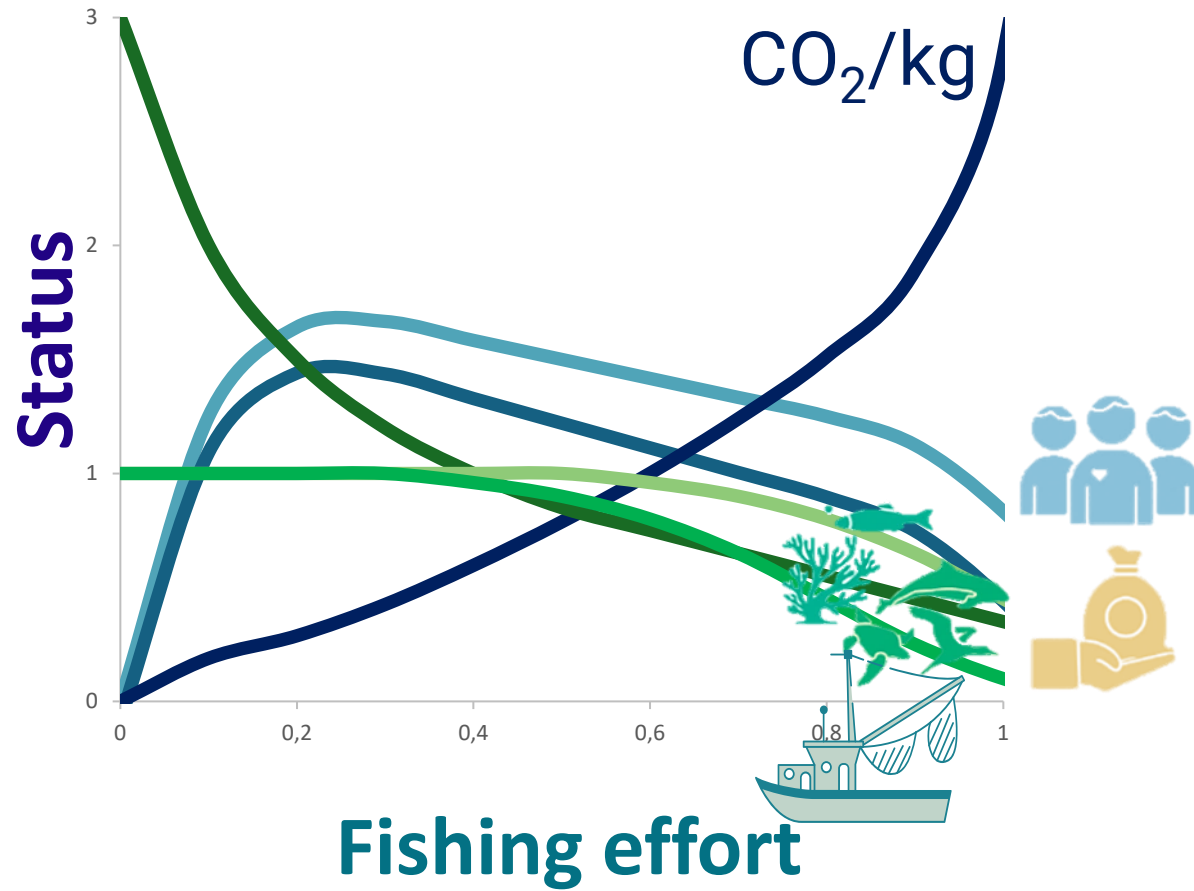
- $MSY B_{trigger}$: A precautionary trigger
 - The biomass at which changes in management of F should begin.
 - Triggers reductions in F at management (i.e. reductions in advised catch).
 - No harvest control rule proscribed, but ICES uses $F_{MSY} * (SSB / MSY B_{trigger})$.
- B_{pa} : A precautionary limit
 - Not $Blim$, but $Blim$ given our uncertainty around $Blim$
 - The “it’s possible that we might cause recruitment impairment”, limit.
- B_{lim} : The hard limit
 - Recruitment impairment begins
 - Potential for negative feedback spiral
 - Also used in forecasts as a rule no greater than 5% chance of going below $Blim$ in me

Assessment Targets / Limits: Reference points





Future of Baltic Assessments – EBFM?



REMOVED: Unpublished table on barriers and mitigation actions for operationalising EBFM.

Write any questions down for the panel!

Thanks!