Reference Points

Sea Scallop PDT Meeting, July 2025

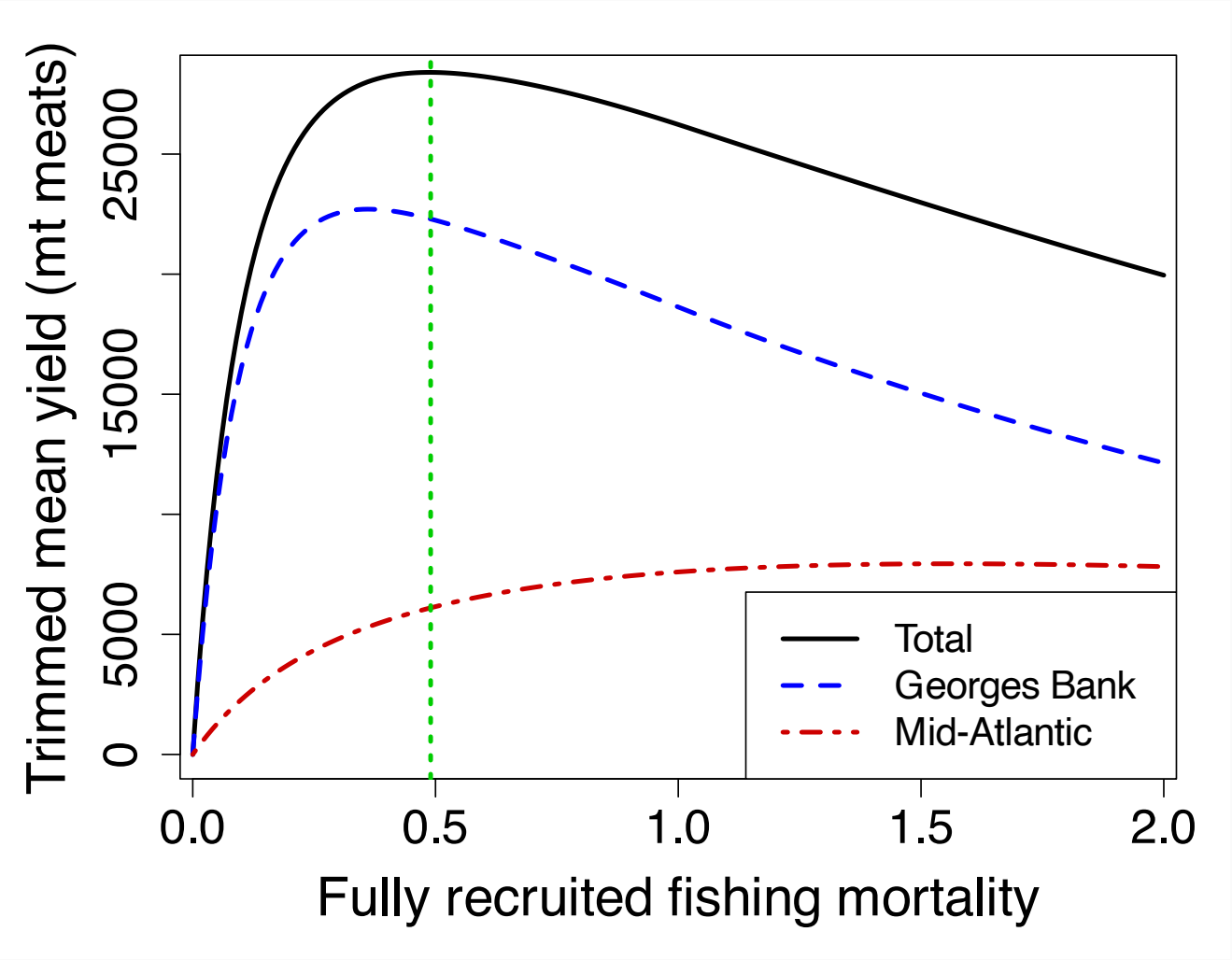
Dvora Hart, NEFSC, Woods Hole MA

SYM Model - see Hart (2013) ICESJMS 70:591-603

- Takes into account parameter uncertain by Monte-Carlo simulation - each simulation draws parameters from estimated distributions, including covariance with other parameters
- Estimates yield Y using the equations $Y = yR$ and $R = s(bR)$, where y is yield per recruit, R is recruitment, s is the stock-recruit relationship, and b is biomass per recruit (Beverton & Holt 1957).
- Per recruit calculations use the parameters from the most recent period (with uncertainty). Mean $M = 0.56$ for the Mid-Atlantic, and $M = 0.27$ for Georges Bank. The stock-recruit curves were estimated using recruitment and biomass/SSB estimated from the CASA model runs.

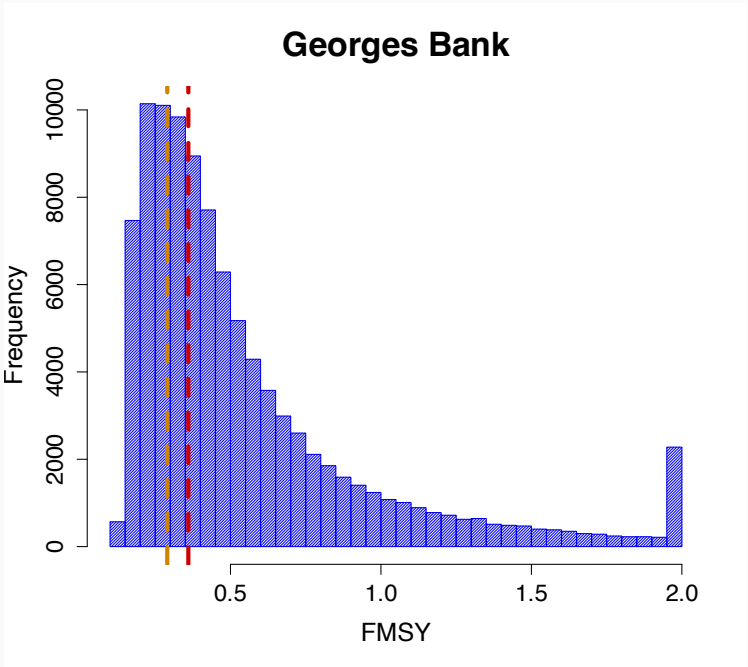
Trimmed mean yield curves

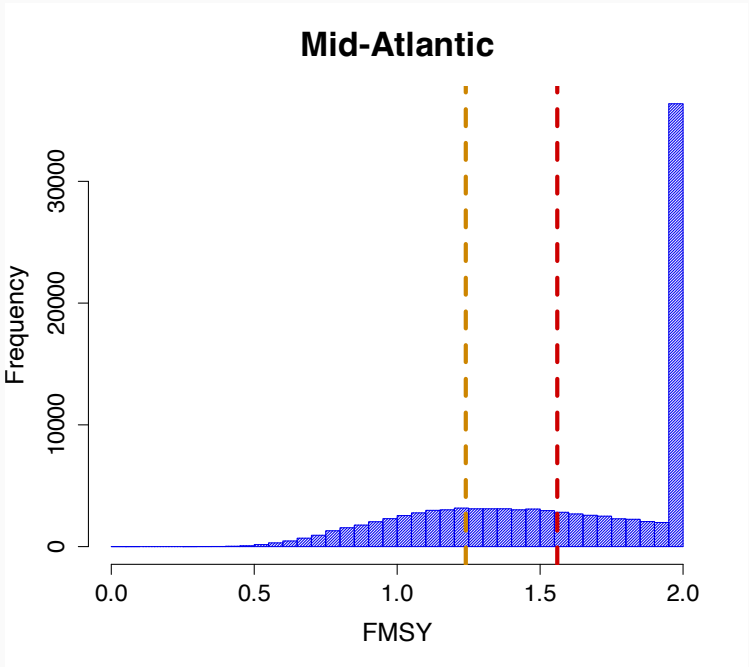
Each point in these curves represents the 10% trimmed mean of the 100000 runs. $F = 0.49$ is where the combined yield curve has its maximum (F_{MSY})



ACL Calculations

The fishing mortality corresponding to the ACL is calculated as the 25th percentile of the MSYs from the 100000 simulations. So fishing at this F means that 75% of the time, you will be fishing at or below the true F_{MSY}. $F_{\text{ACL}} = 0.29$ for Georges Bank, 1.24 for the Mid-Atlantic and 0.36 for the combined resource.





Combined MSY ACL plot