**Spatial Reference Points in the next generation of Fishery Assessment Models: technical & practical considerations**

Description: Review technical literature around calculating reference points for spatial assessment models; discuss barriers to implementation of such models for management, and future research which could help bridge the gap…

Methodology

We would like to present a small set of scenarios to illustrate how MSY and attendant FMSY are calculated in a spatial model. All scenarios use a 3-area age-structured model with empirical weight-at-age. The areas vary in their weights-at-age and selectivity values, and can experience different *Fs*. They’re linked via a probability transition matrix describing unidirectional….

Equilibrium

Equilibrium is defined as (omega + time)

Scenarios

The four illustrations are as follows

1. Calculating MSY at the simple end of omega + time, ignoring recruitment – **WHAT DOES SYNTHESIS DO?**
2. Same as above with constant recruitment
3. Introduce a stock-recruit relationship which is [based upon total SB but partitions recruits according to …]
4. Introduce density dependence in movement

For each scenario, we find the optimum F (FMSY) associated with MSY, as well as Fconfig for areas.

We can then compare

1. How many scenarios ended up with negative Fs (likely to occur for source populations)
2. How distinct the MSY/rps were amid the scnarios

This helps us

Determine whether a “generic” spatial RP method is applicable to all circumstances

Rick’s Idea

1. Mockup comparison of CURRENT SS approach and proposed approximation
2. Note in mind the caveat about sr-locality invalidating the ability to analytically solve for the igens.
3. His notes
   1. Total recruitment based on tot bio (can be summed across areas, as it already is)
   2. Distribute according to recr\_dist
   3. Calc eqNAA using F, movement
   4. Output toal SPR
   5. Then input this SPR into “equ spawn recr fxn” to calc rec eq and spawn eq from this spr (TOTAL)
   6. Area specific