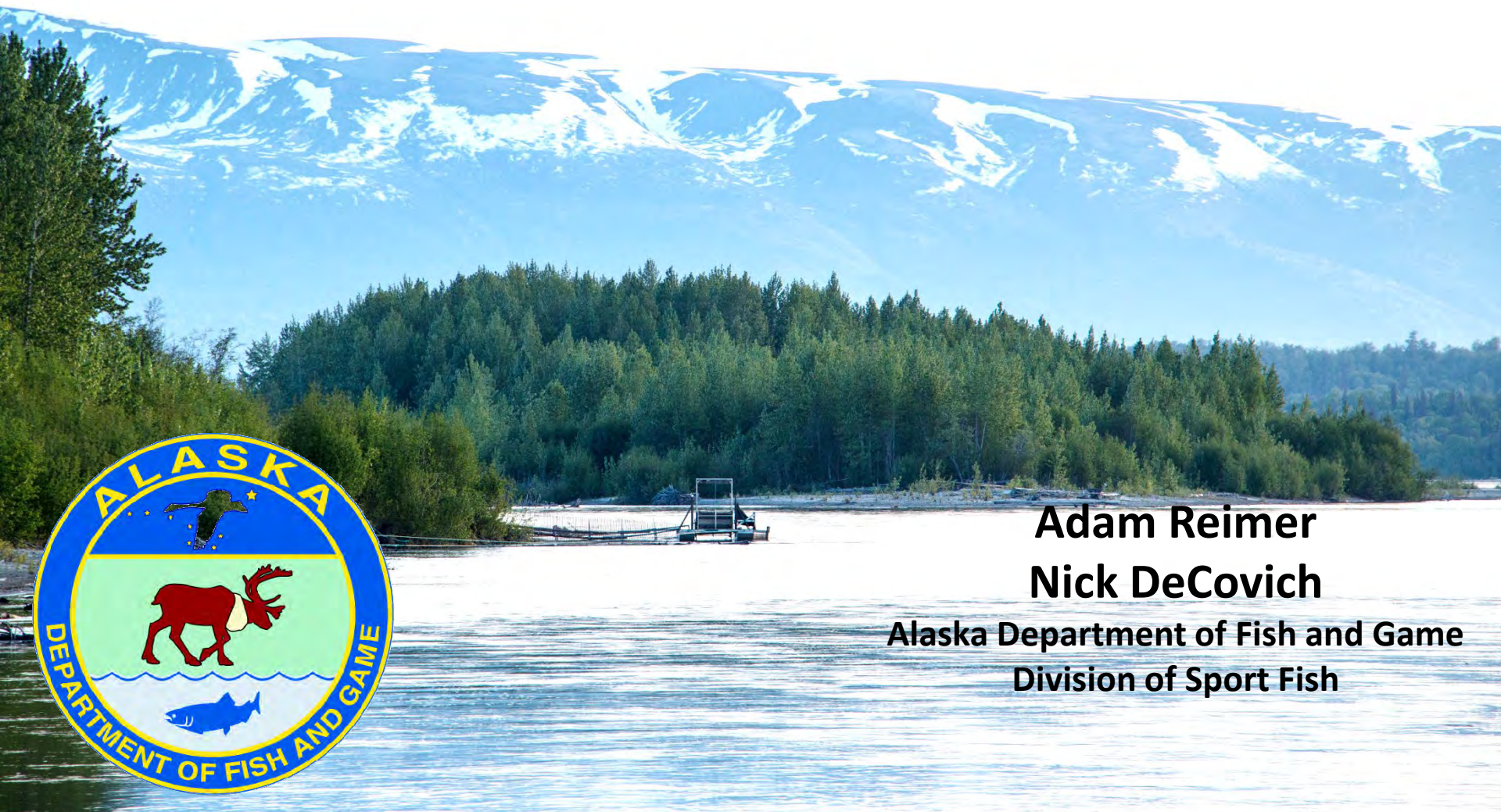


Susitna River Chinook Salmon Stock-Recruit Analyses



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Division of Sport Fish**

Terms for Speaking about Salmon Production

Return = Adult salmon produced from a single brood year escapement; synonymous with **Recruitment**

Run = Adult salmon returning to the vicinity of the natal stream in a calendar year

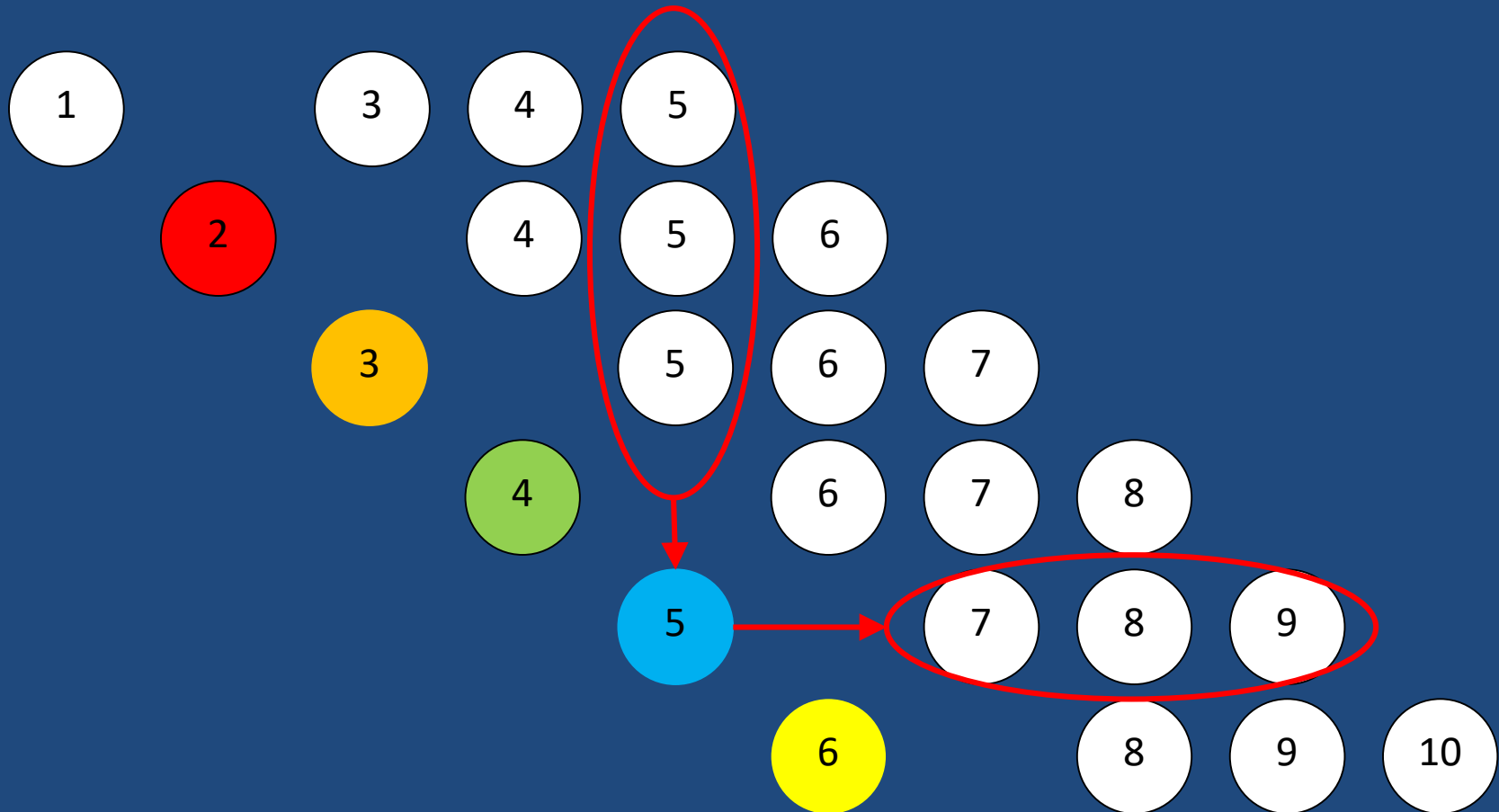
Escapement = Count of **spawners** in a year (or index)

Stock = Two or more salmon populations which occur in the same geographic area and are managed as a unit.
Sustainable Salmon Fisheries Policy 5 AAC 39.222(f)(34)

Yield = Adult salmon produced in excess of escapement from a single brood year

Understanding Age Structure

Simple model

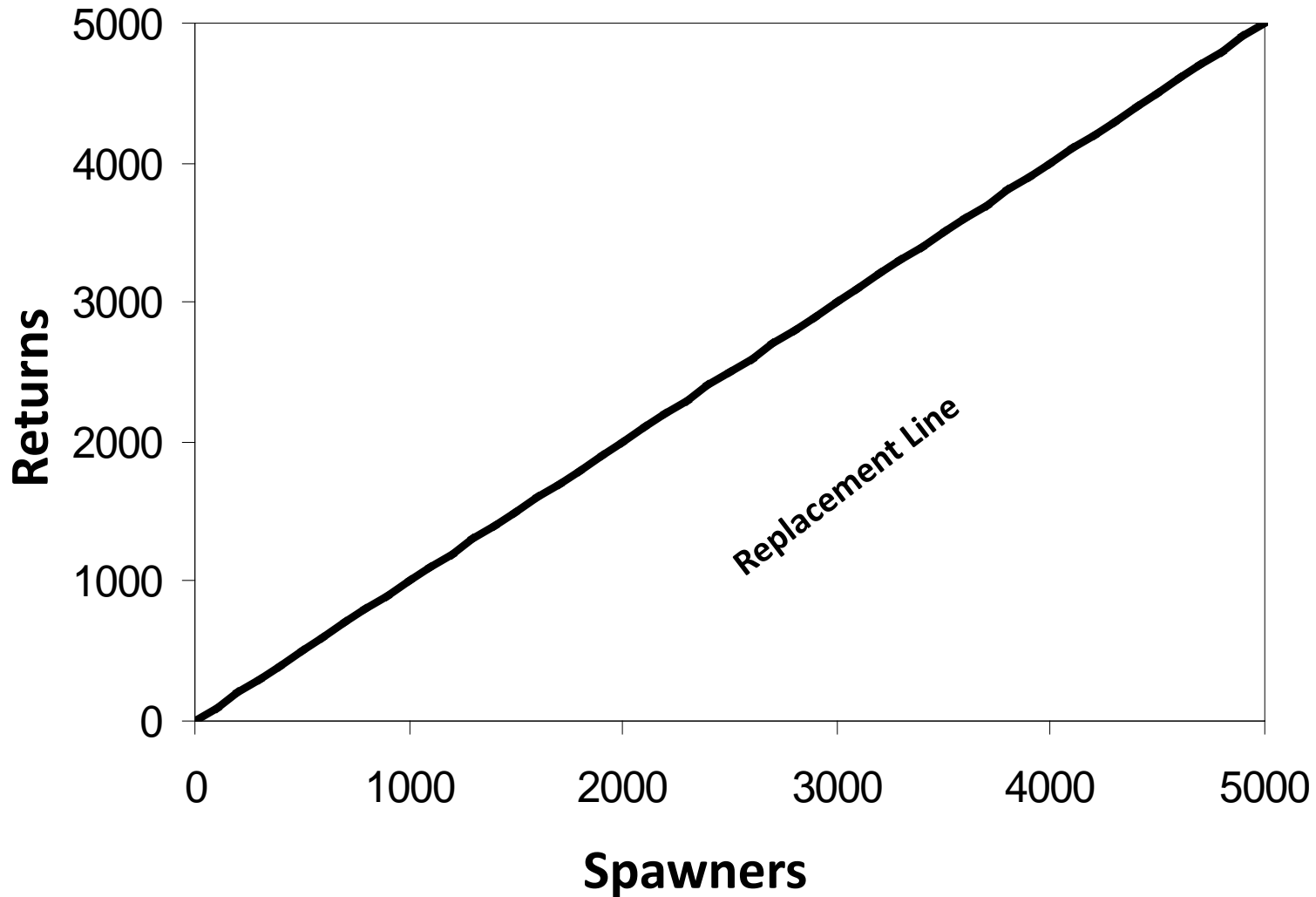


The "run" in year 5 comes from fish spawned in years 1, 2 & 3

The "return" from year 5 contributes to years 7, 8 & 9

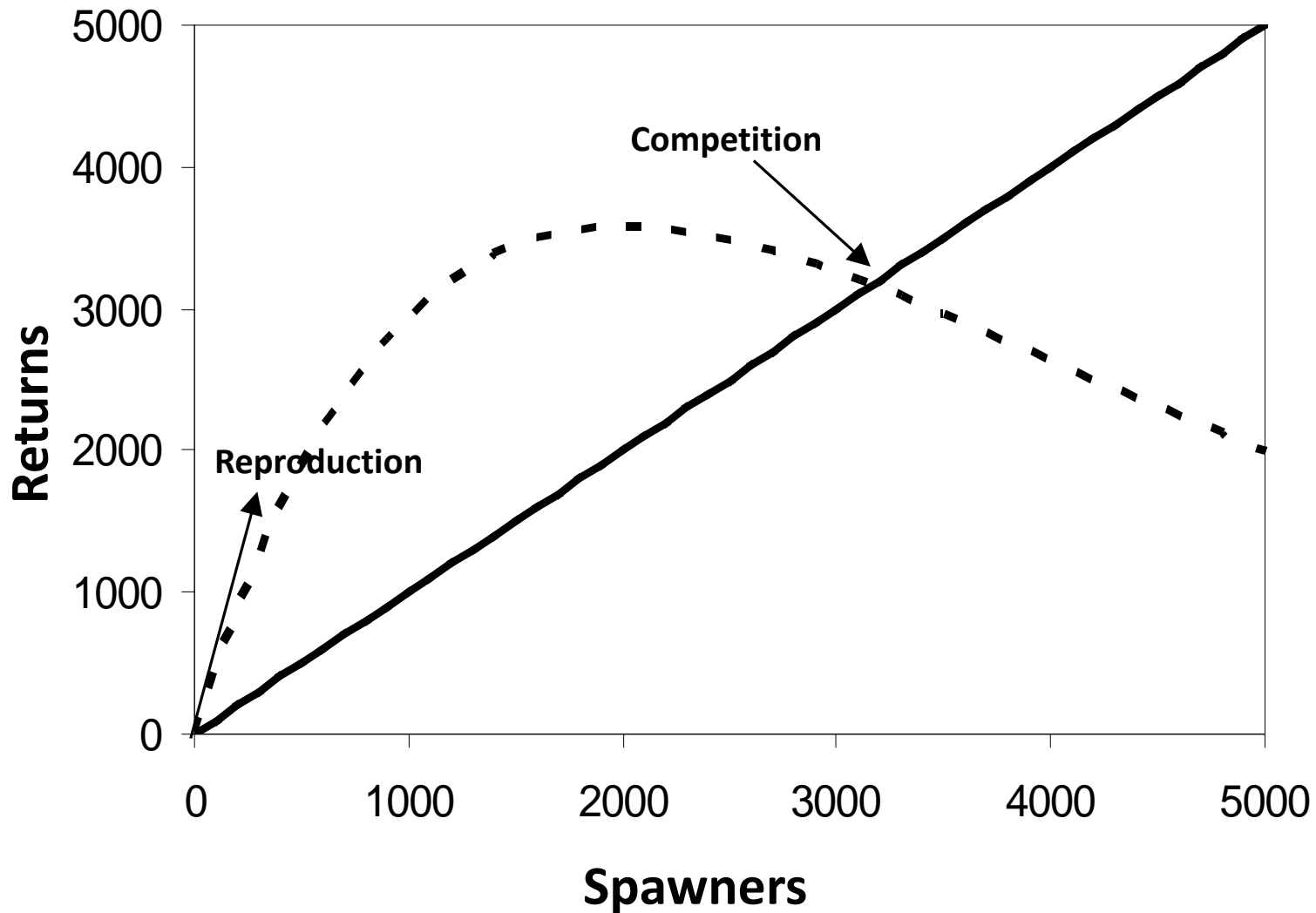
Theory of Salmon Production

...with a **Replacement Line** where escapement = production (i.e. no yields).



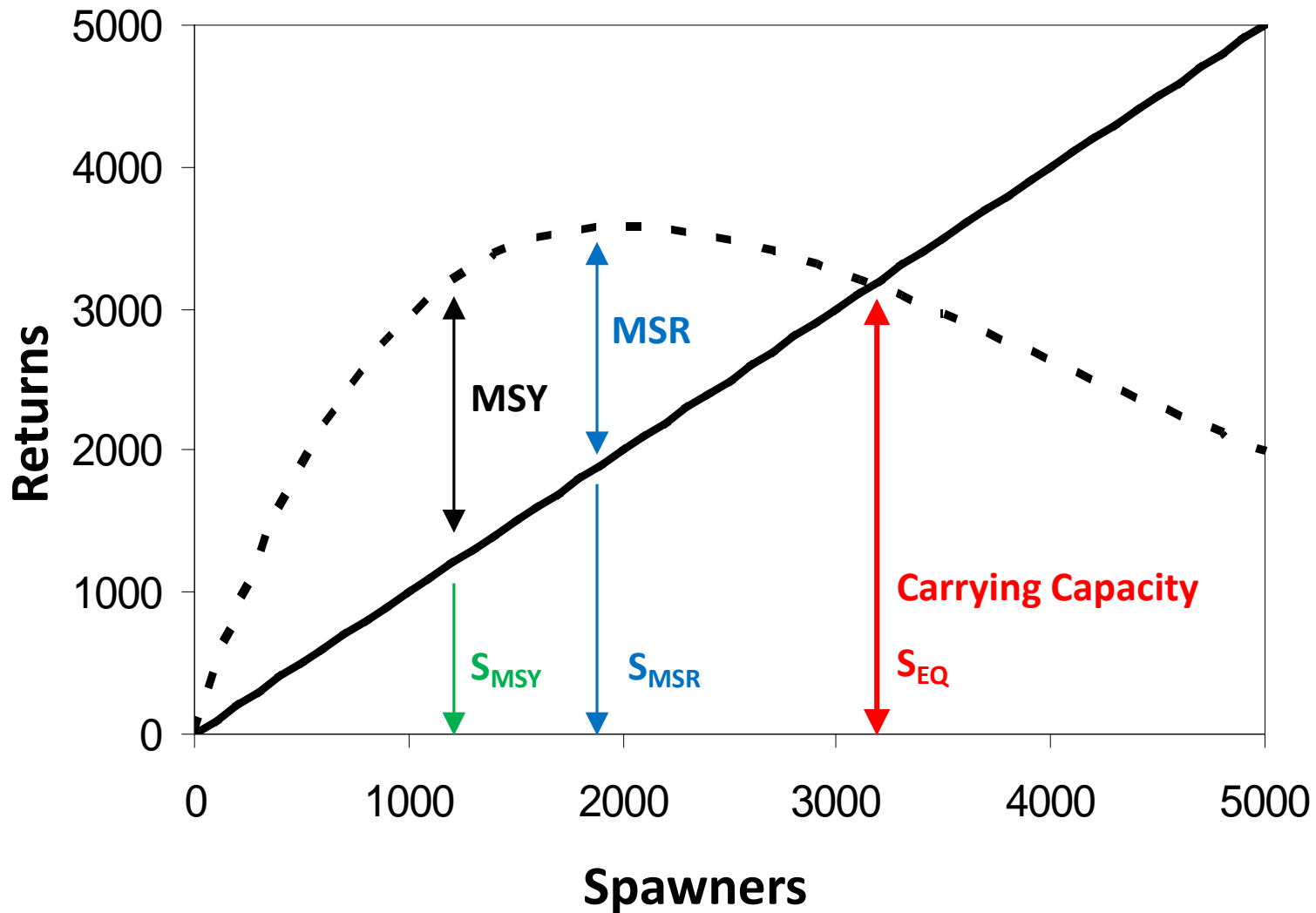
Theory of Salmon Production

We can model the interaction of reproductive potential and competition using our data.



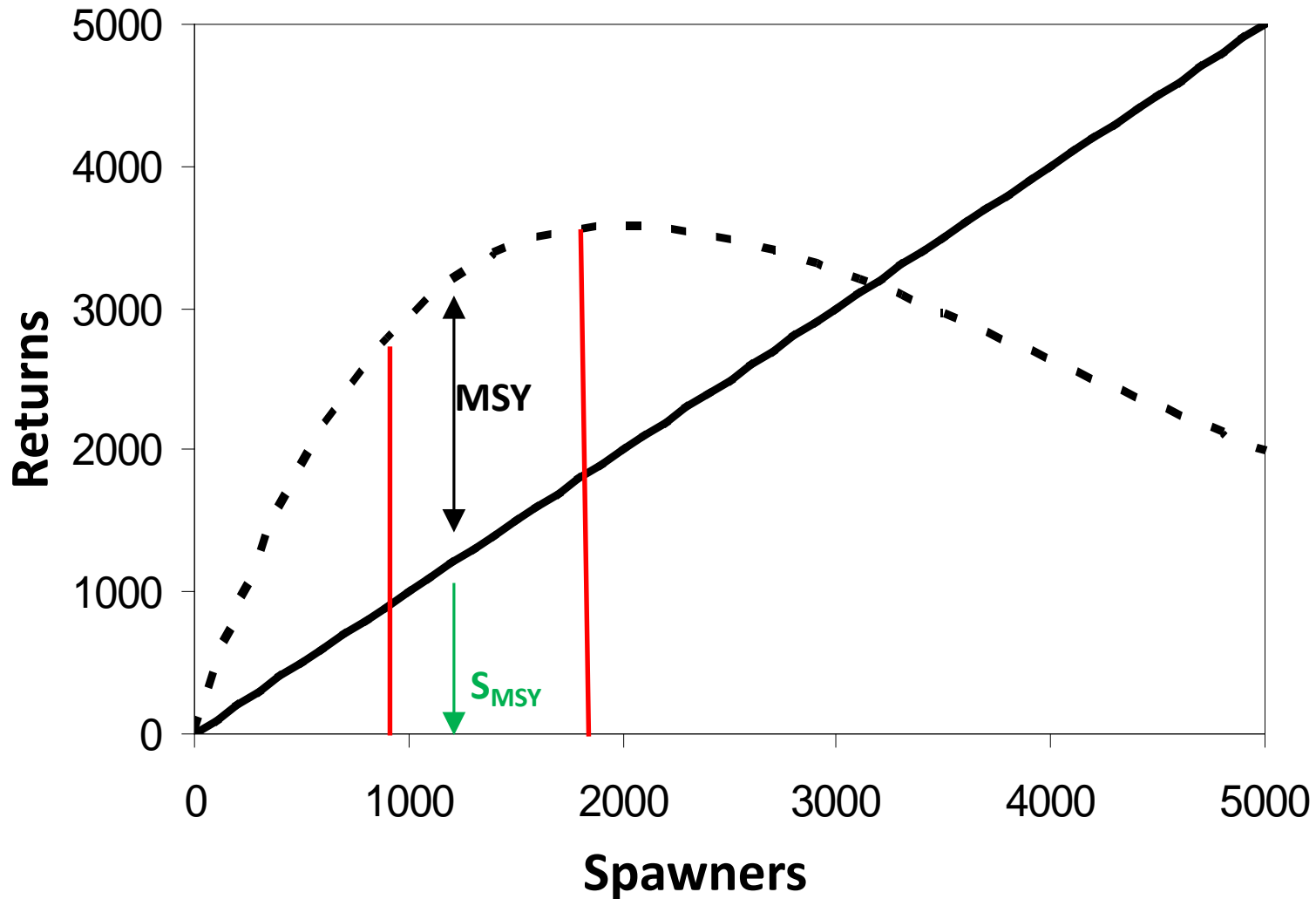
Theory of Salmon Production

...and is associated with a level of escapement that is expected to produce MSY.

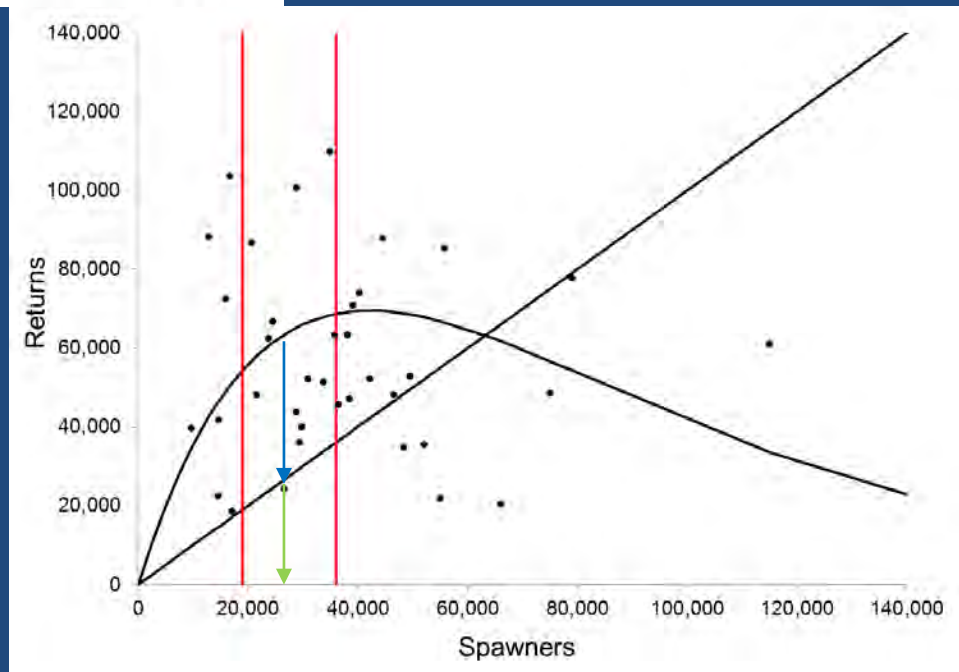
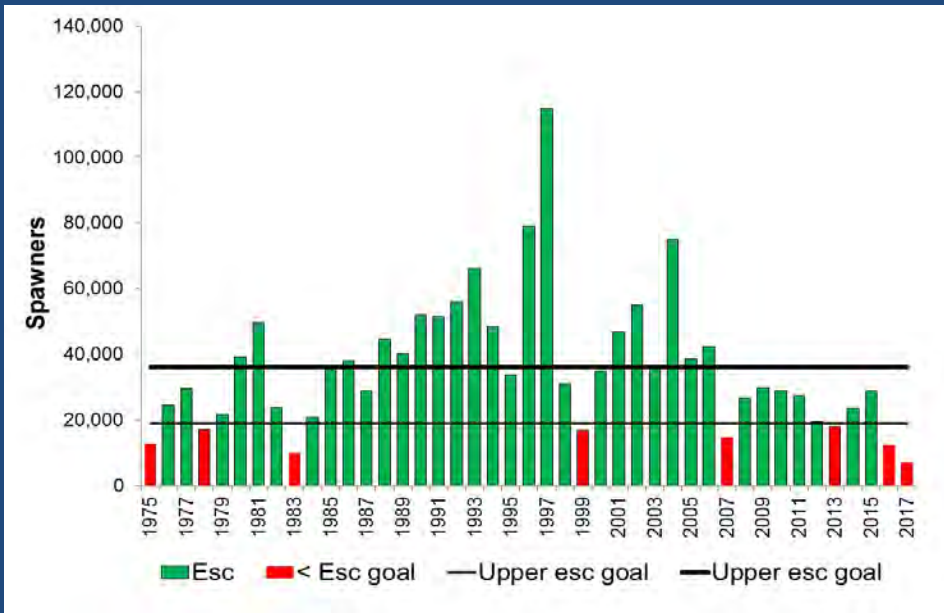


Theory of Salmon Production

A range around the escapement that produces MSY is the theoretical basis of an escapement goal.

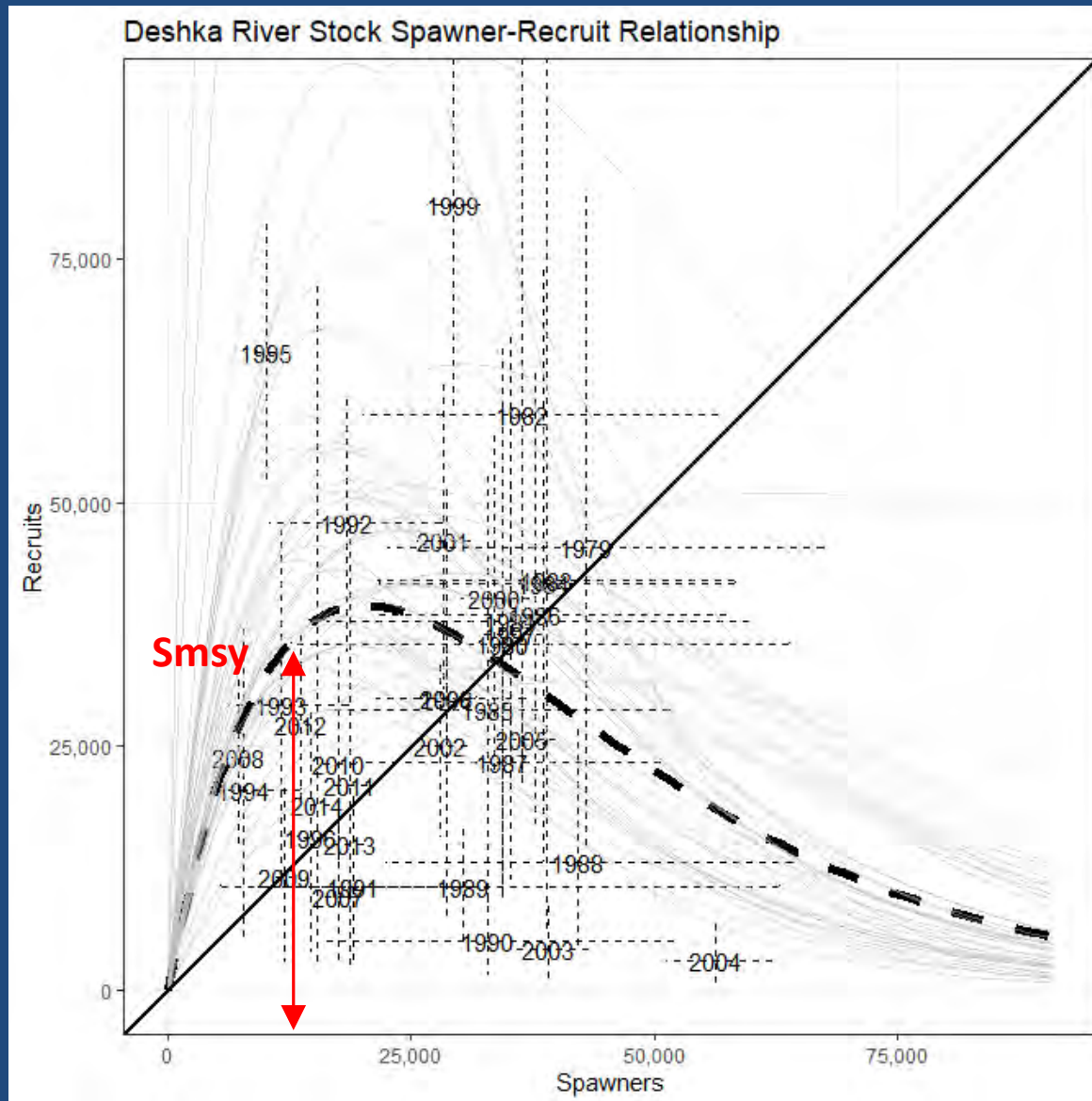


Escapement Goal with Full Harvest Information

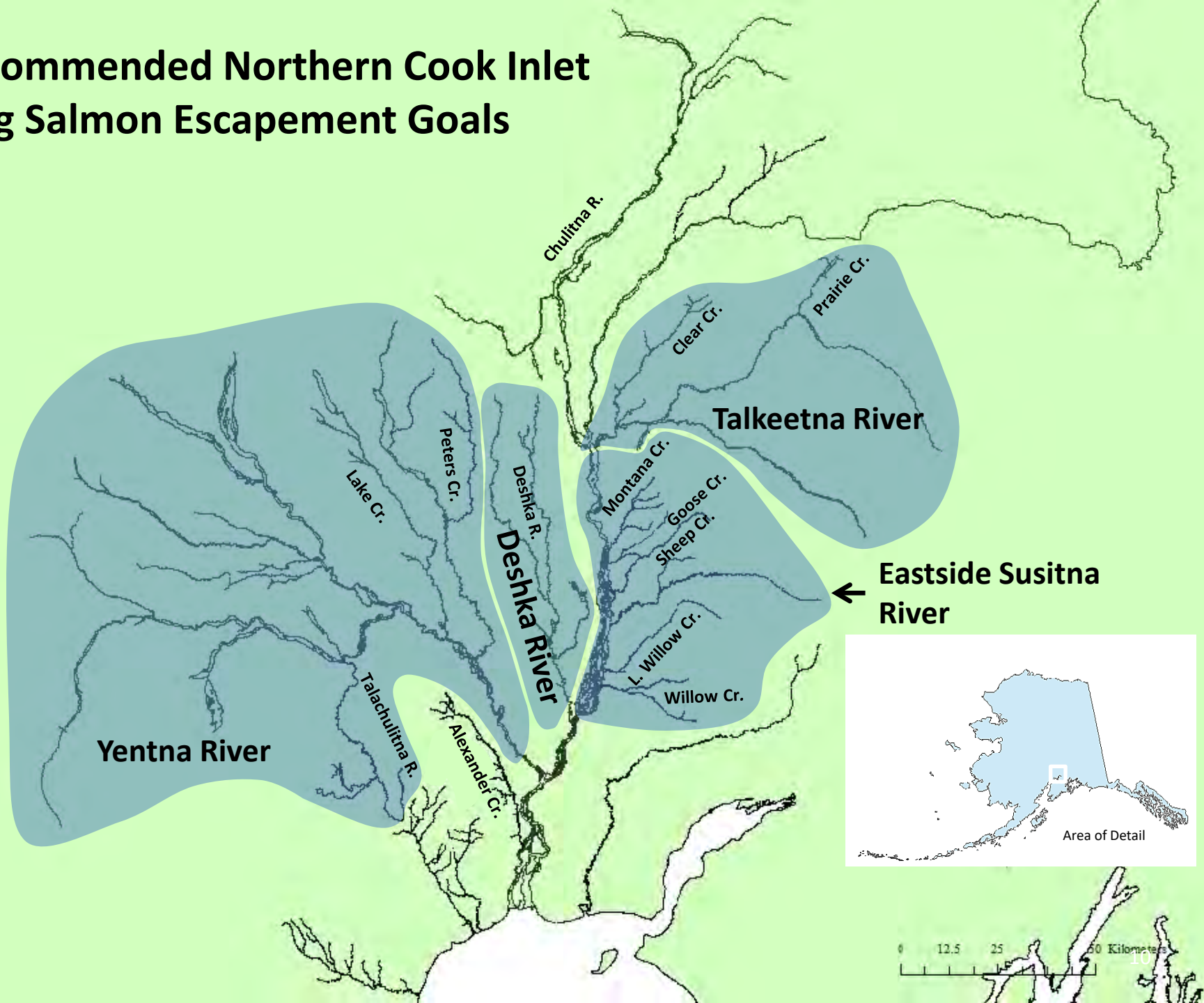


Uncertainty and Escapement Goals

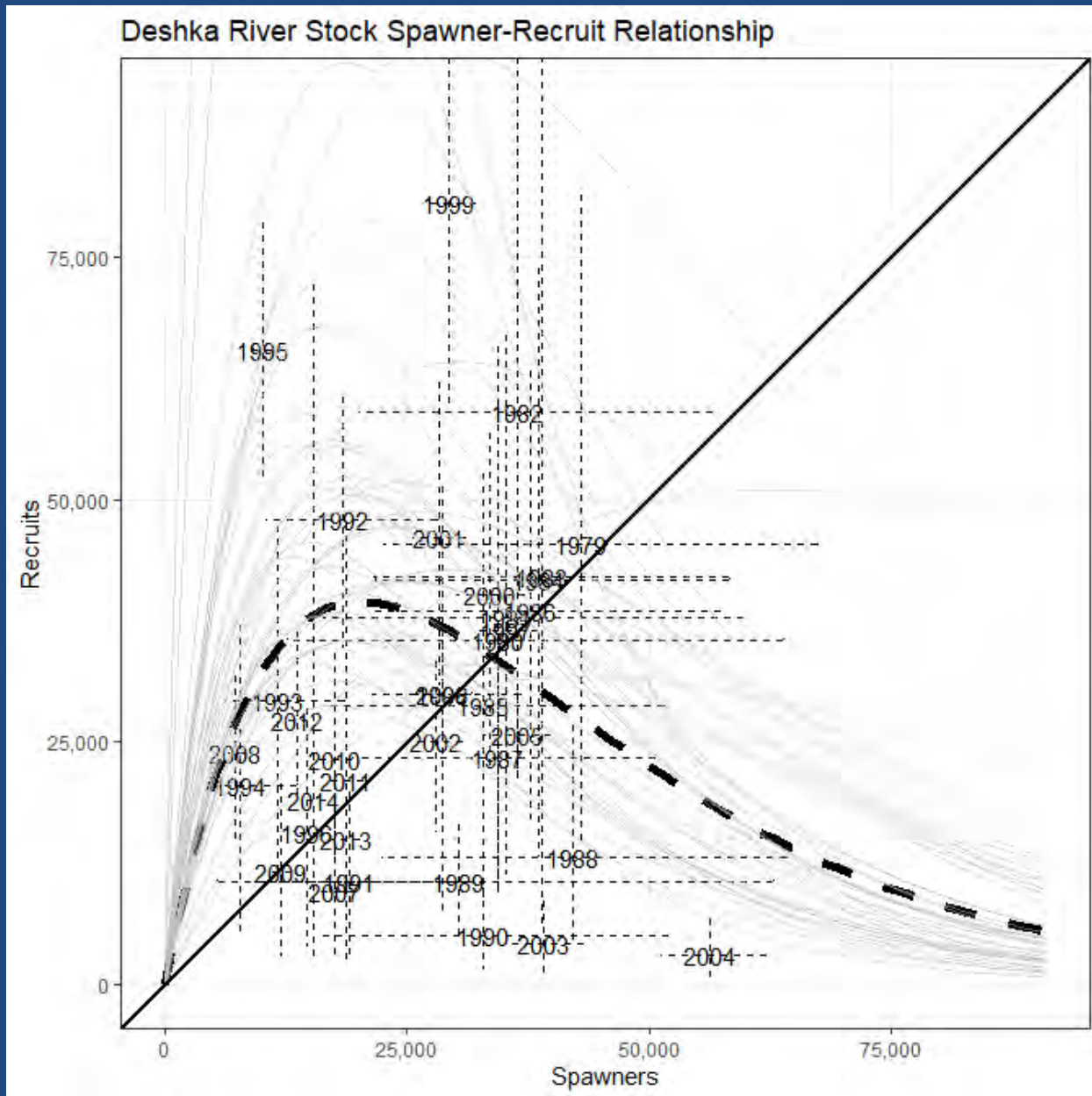
Actual production data will look very different from our simple production model ...



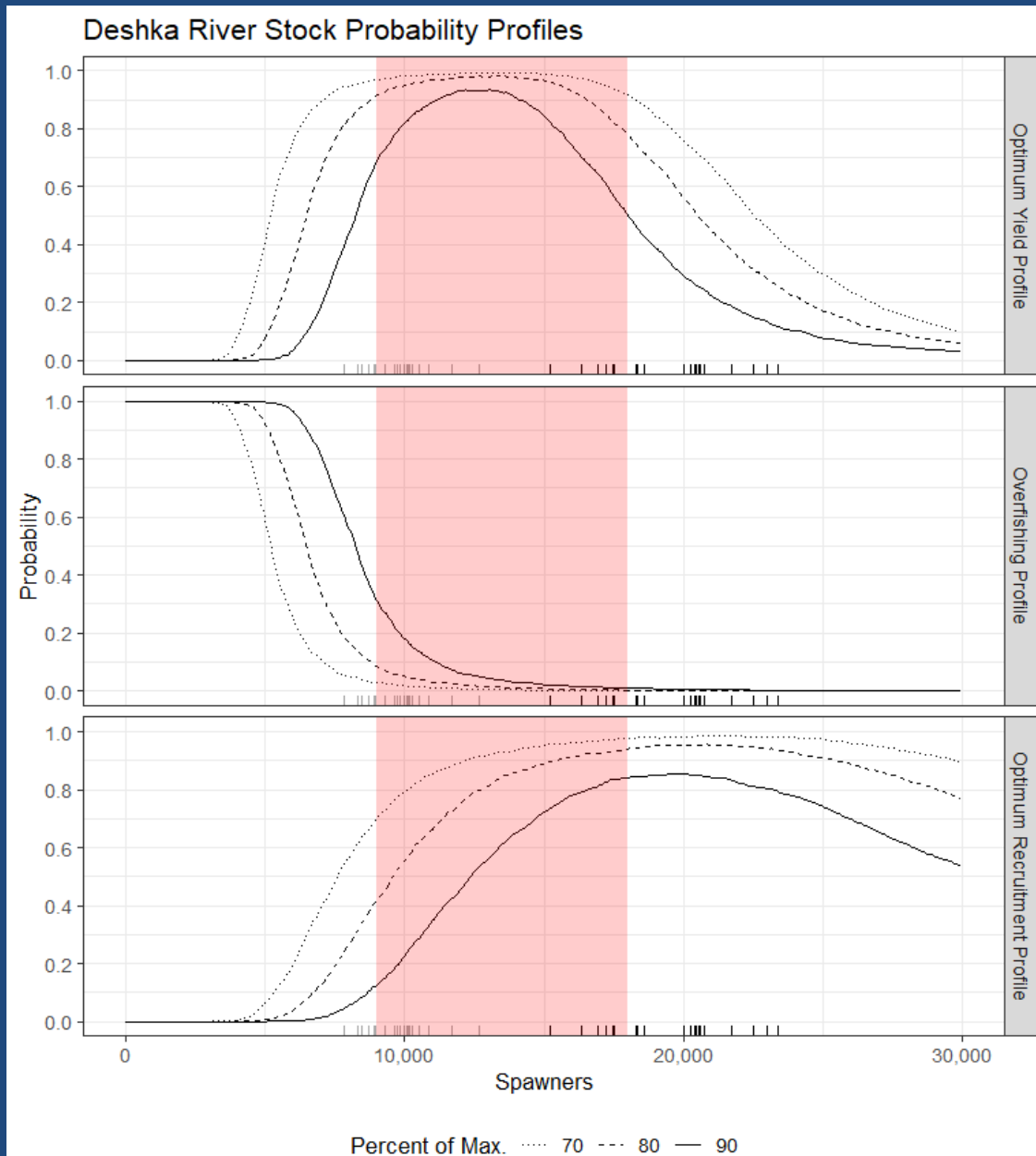
Recommended Northern Cook Inlet King Salmon Escapement Goals



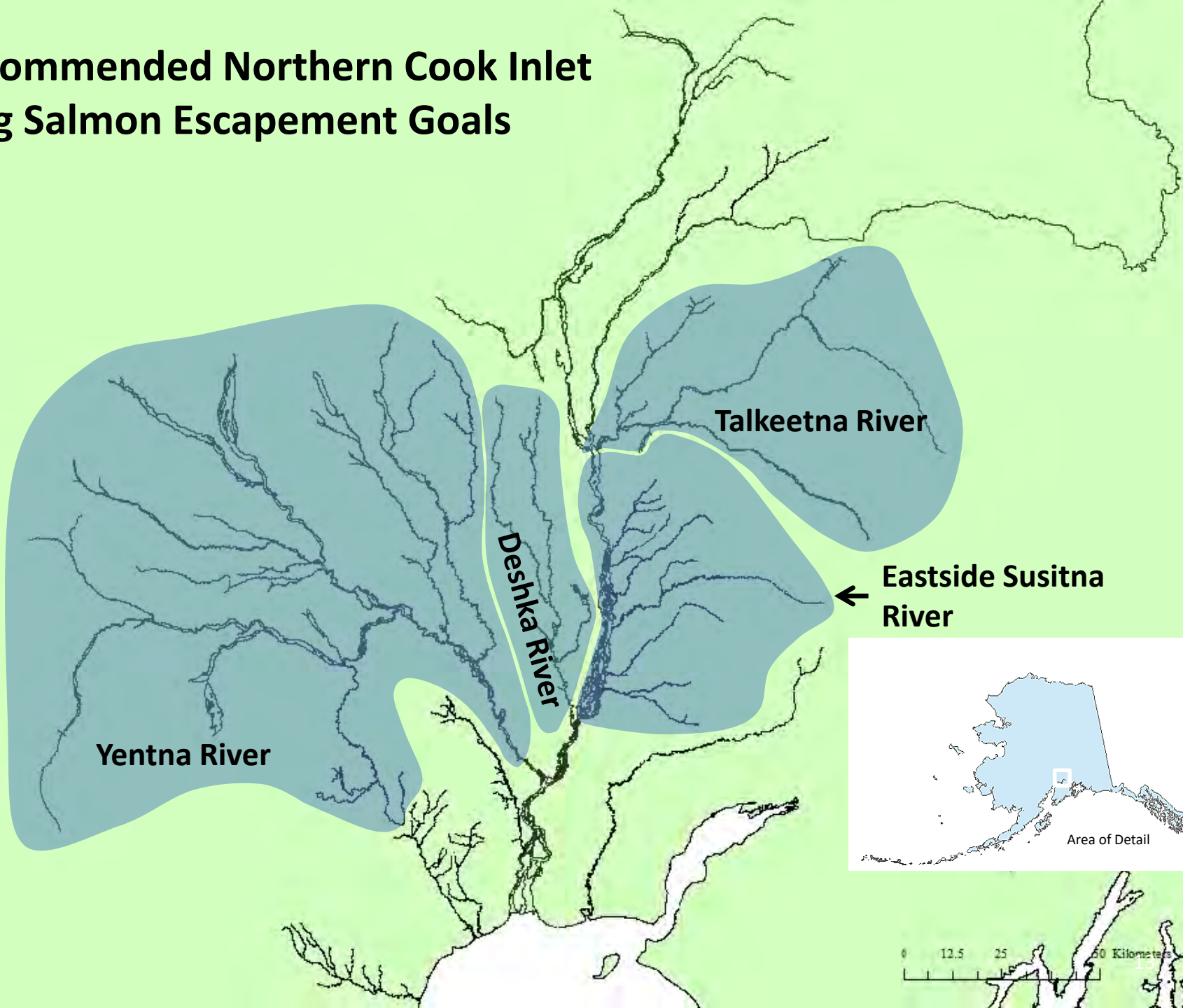
Deshka River Stock



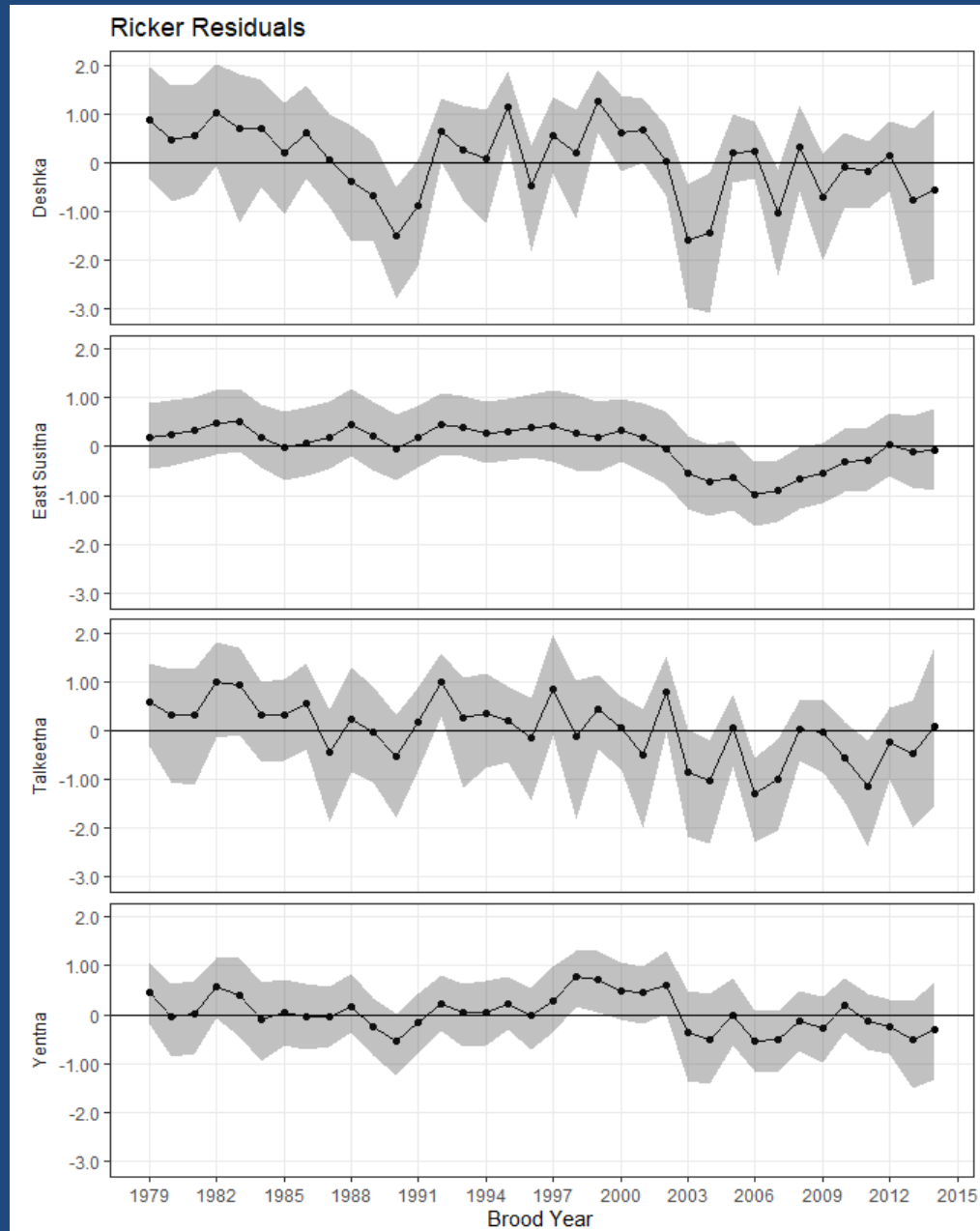
Deshka River Stock



Recommended Northern Cook Inlet King Salmon Escapement Goals



Susitna Chinook Productivity

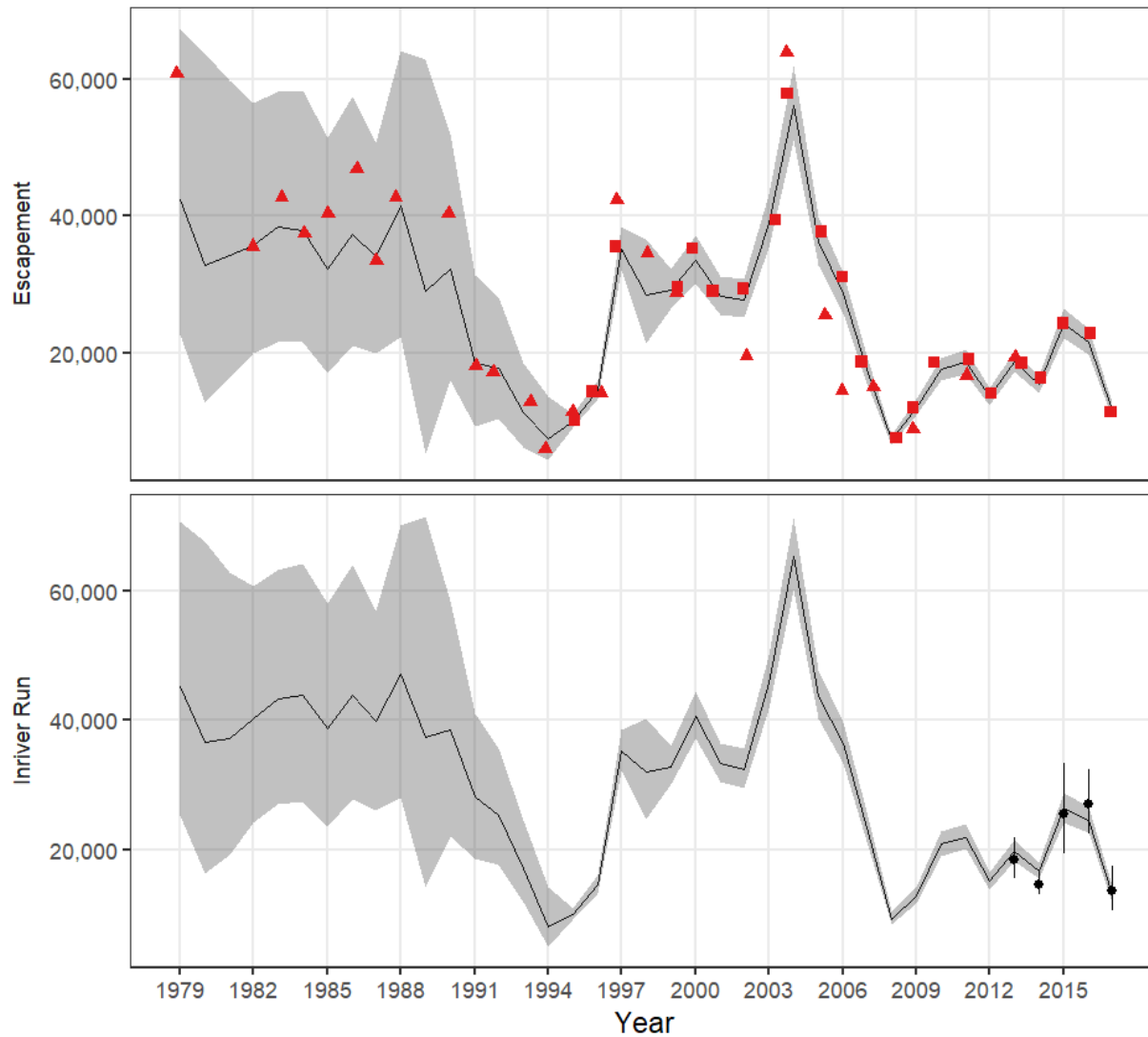


Susitna Chinook Run Reconstruction and EG Analysis Summary

- This approach is advantageous for setting escapement goals because it uses all available data sets to describe the stock recruit relationship, and stocks are the level we manage to.
- This analysis has the potential to shape future management strategies.
- A detailed report of this analysis is scheduled for publication in early winter 2020.

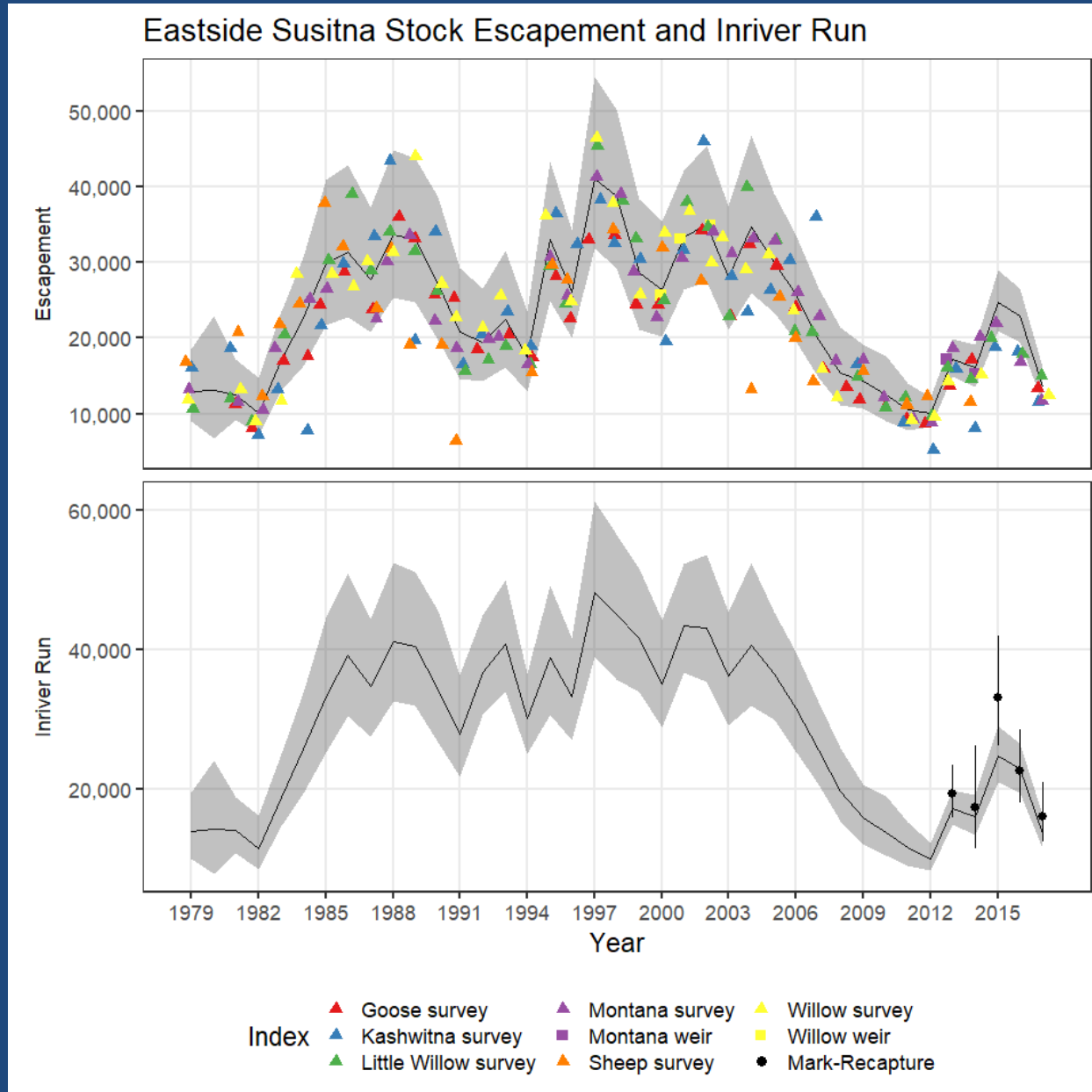
Deshka River Stock

Deshka River Stock Escapement and Inriver Run

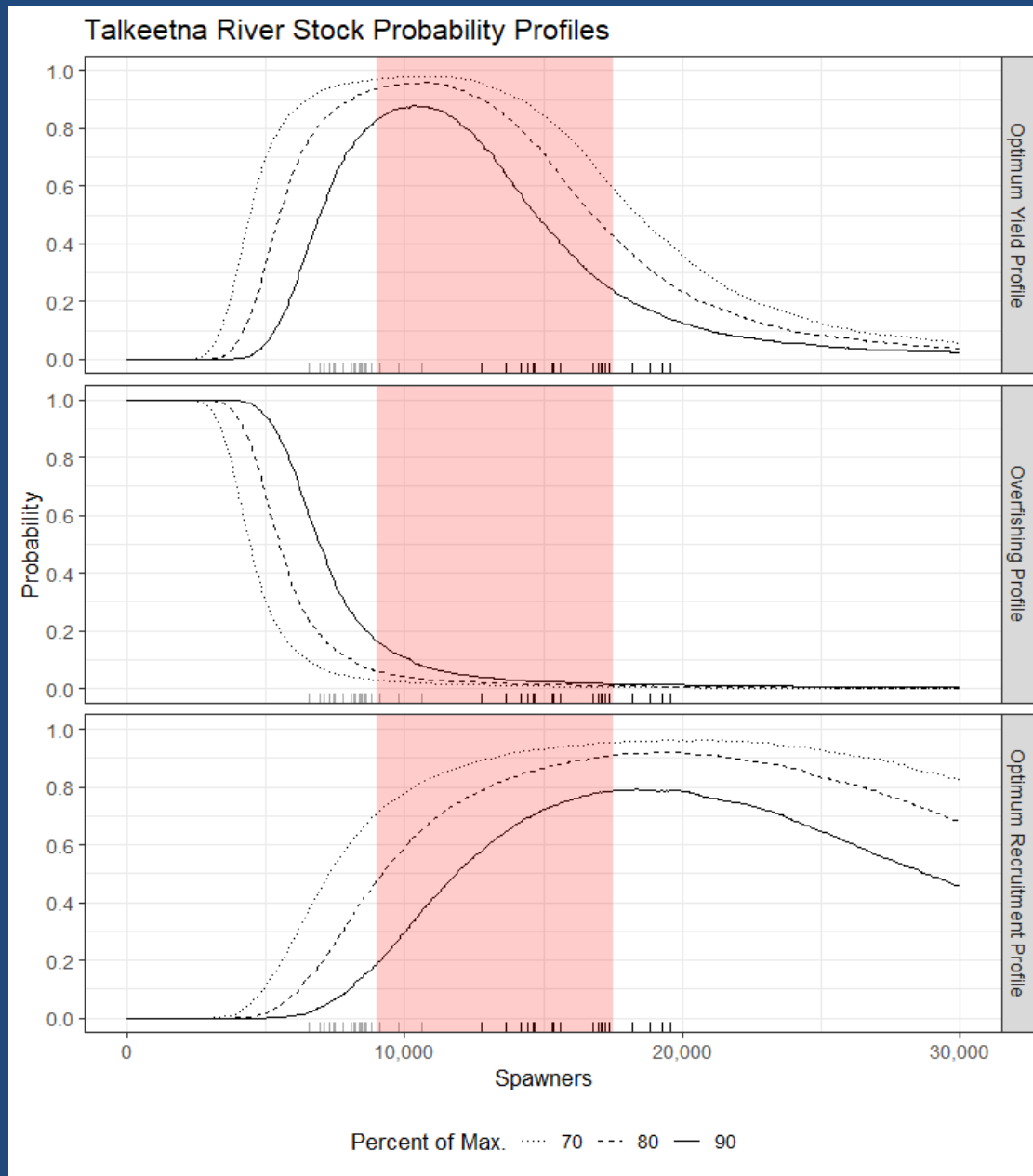


Index ▲ Deshka survey ■ Deshka weir ● Mark-Recapture

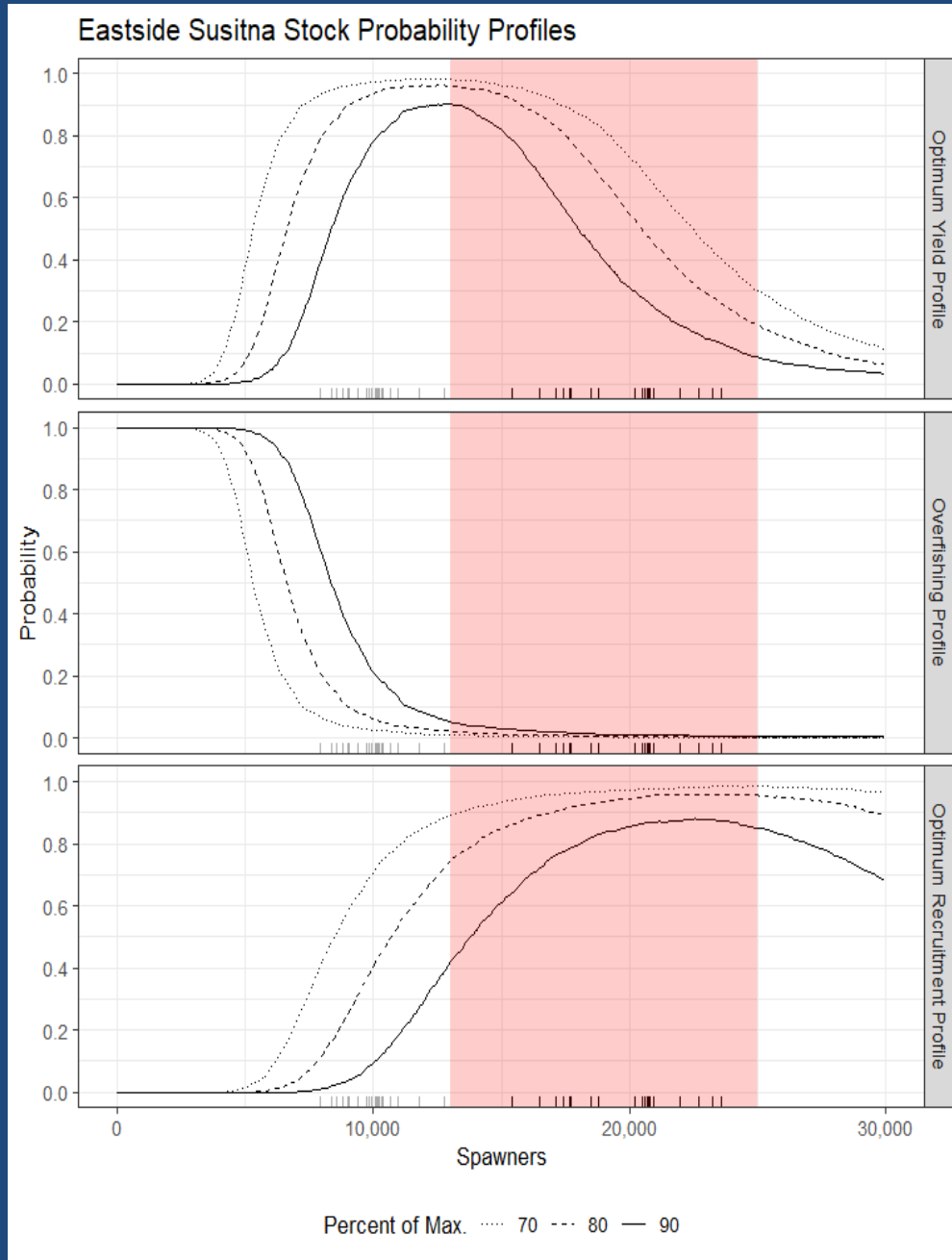
Eastside Susitna Stock



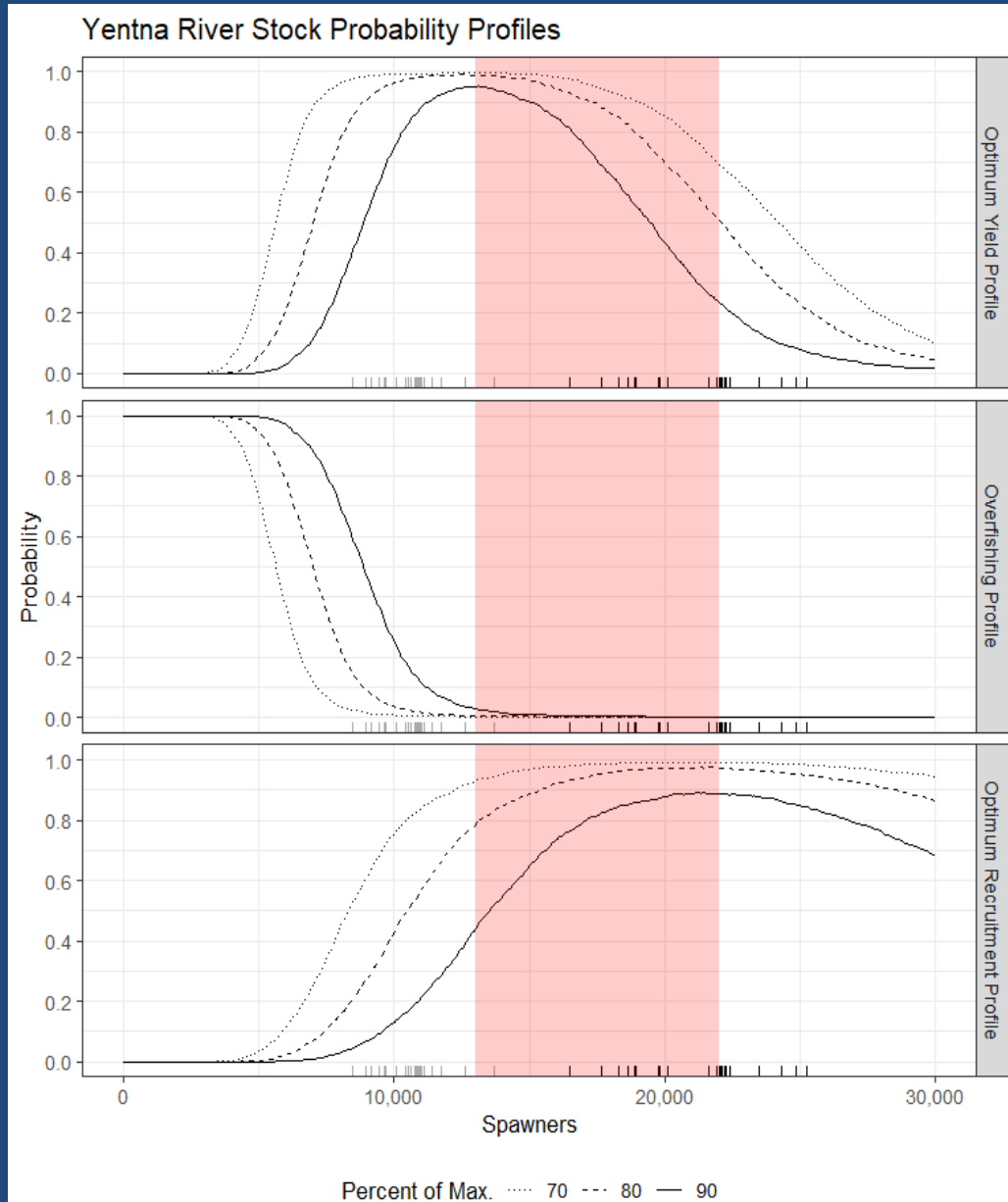
Talkeetna River Stock



Eastside Susitna Stock



Yentna River Stock



Yentna River Stock

