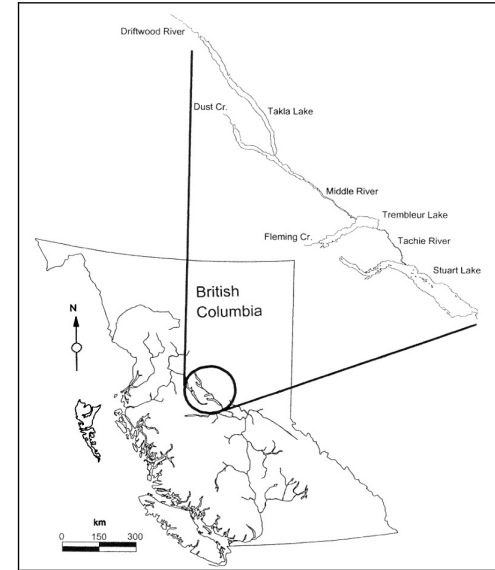


# State of the Stock 2023

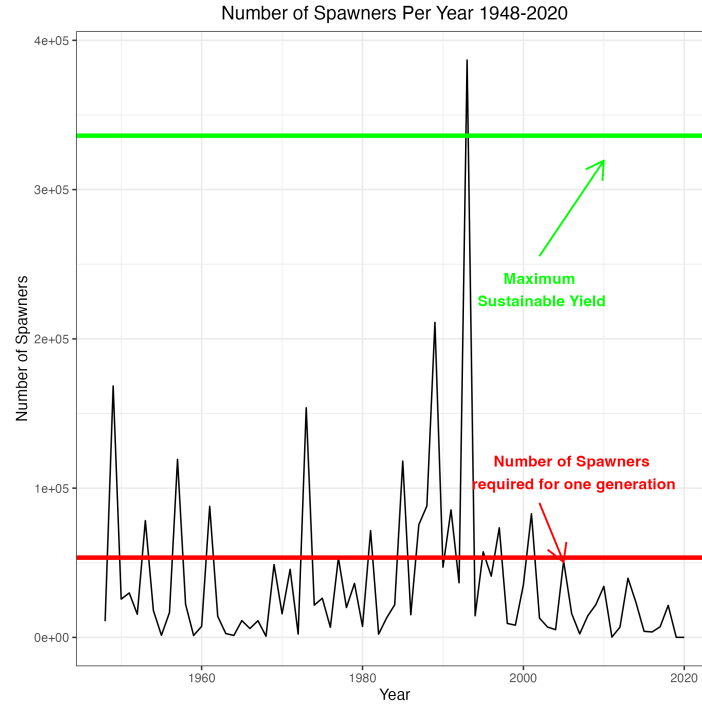
Lukas Van Riel, Effie Gao, Jesus Pascual, Jack A.  
Goldman

# Fraser River Sockeye Fishery

- 2019 and 2020 lowest recorded Fraser Sockeye return ever
- Management plans led to reduced fishing opportunities
- **Early Stuart**
  - fish that return to spawn in early summer
- 2019 forecast found evidence of population declines
- 2021 forecast suggest the stock will not reach recovery target



# State of the population



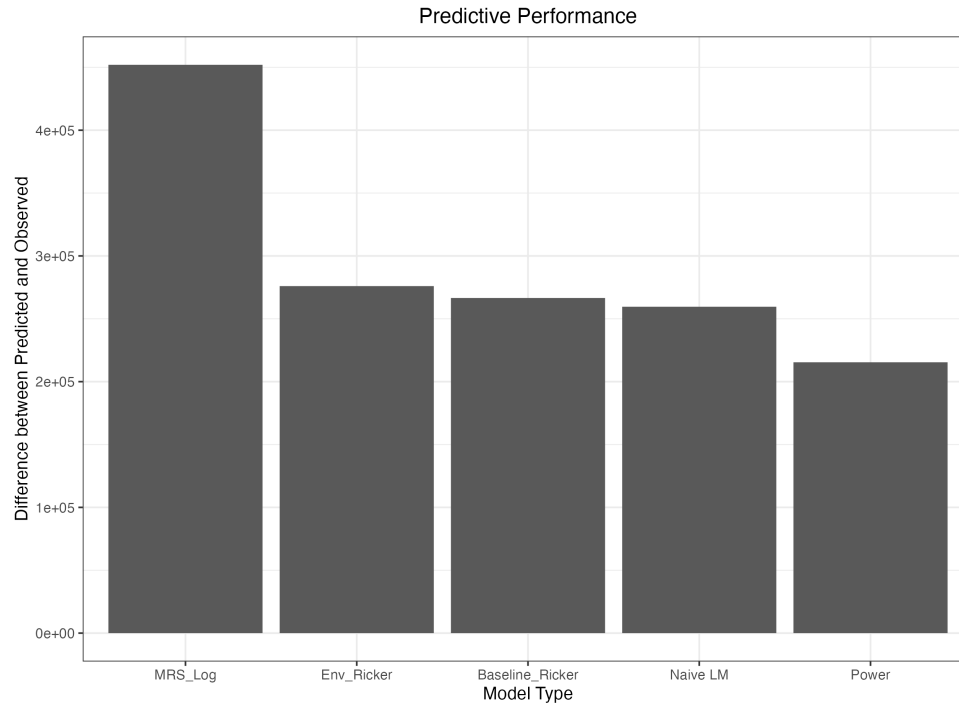
# Goals

- Previous forecasting methods are old and out of date
- **Goal:** develop new forecasting methods and evaluate performance

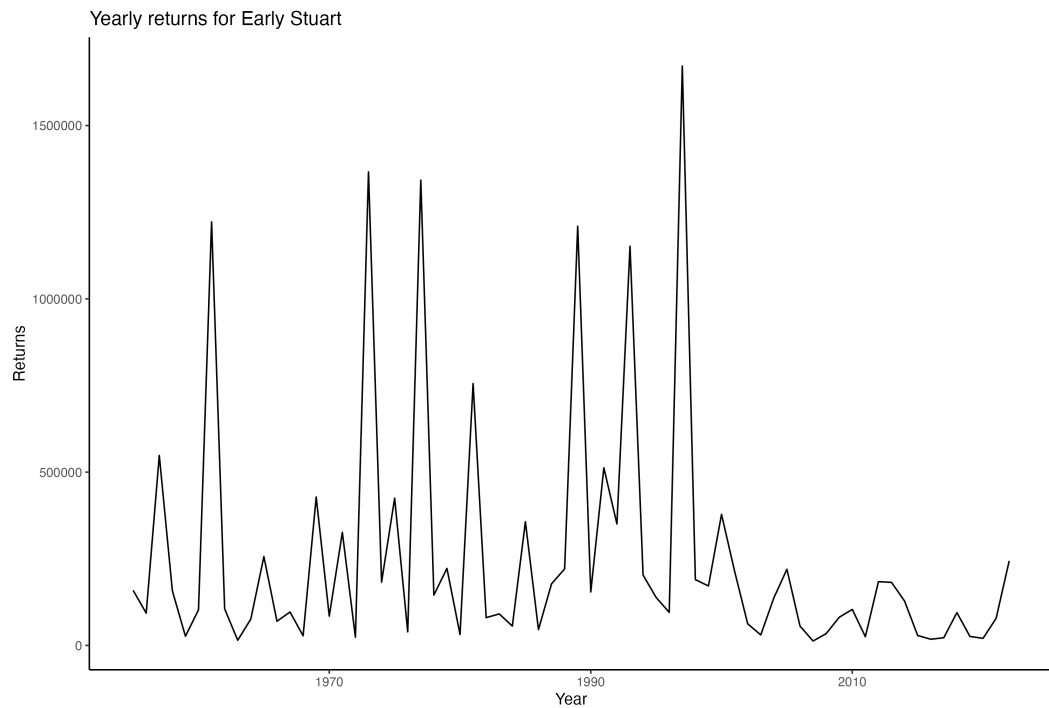
# Candidate models

- Five models:
  - Basic Ricker
  - Ricker with Env. Covariate
  - Power Model
  - Naive
  - Naive Linear Model
- We compared the performance of the models using RMSE

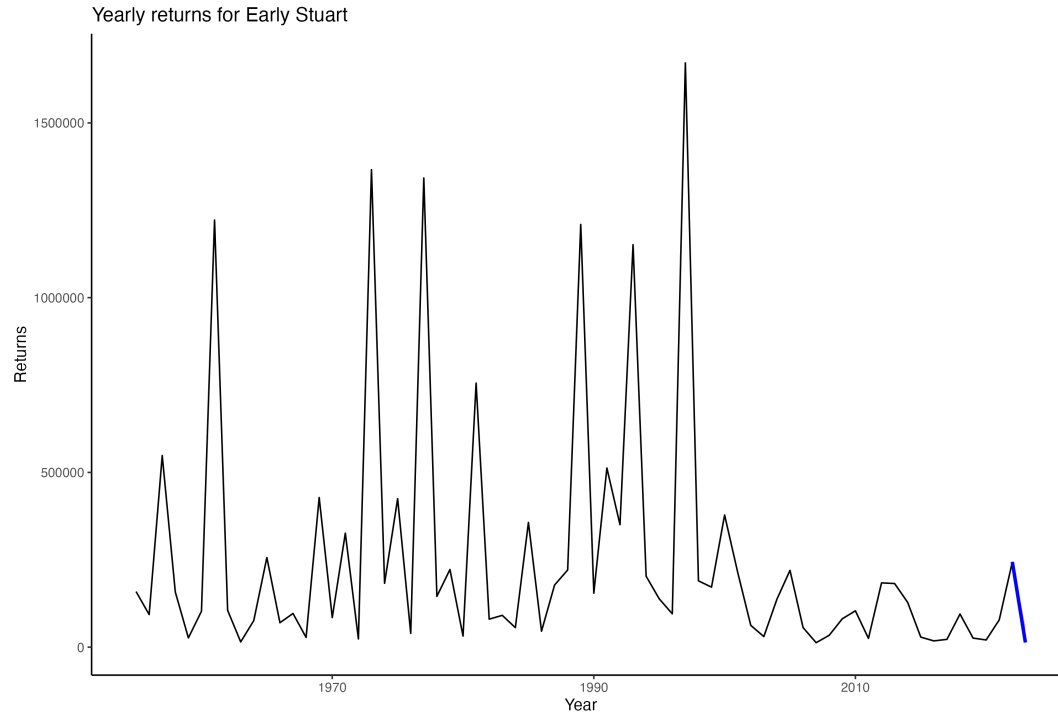
# Model comparisons



# Proof of Concept Forecast

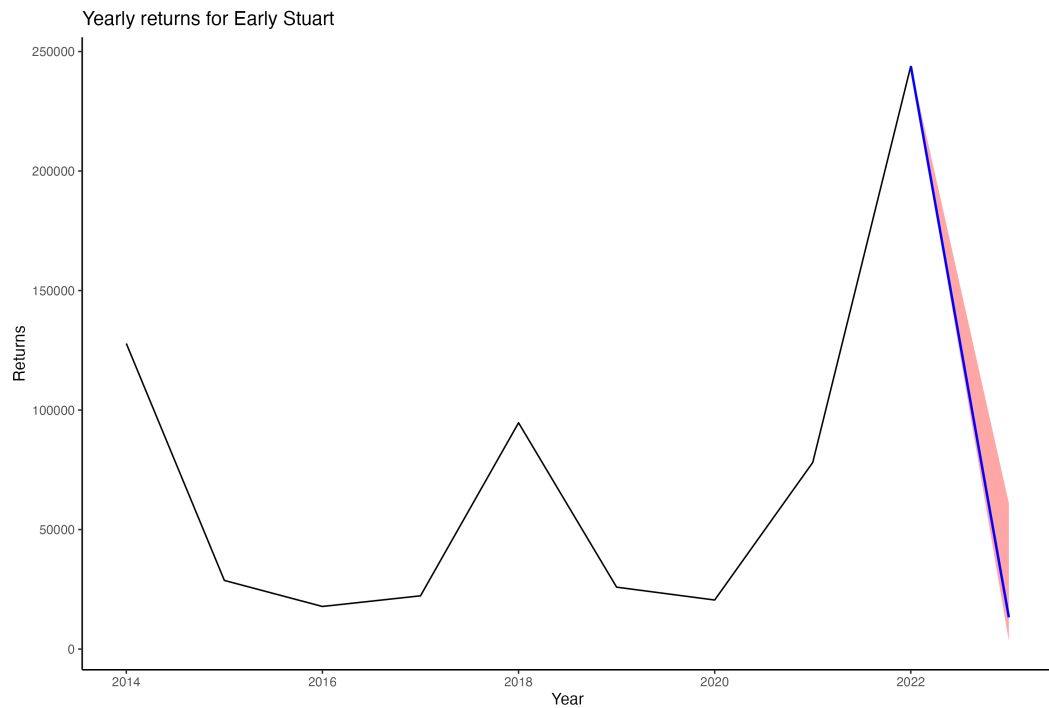


# Proof of Concept Forecast



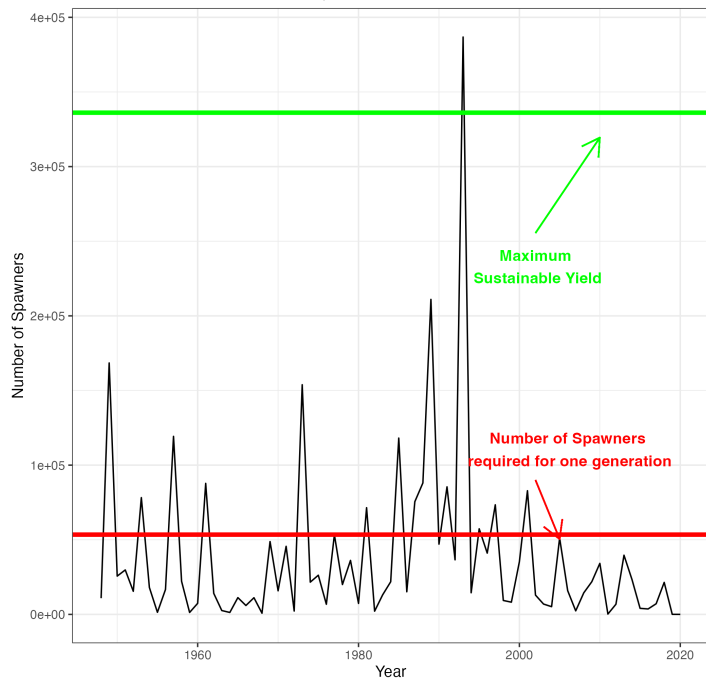


# Proof of Concept Forecast

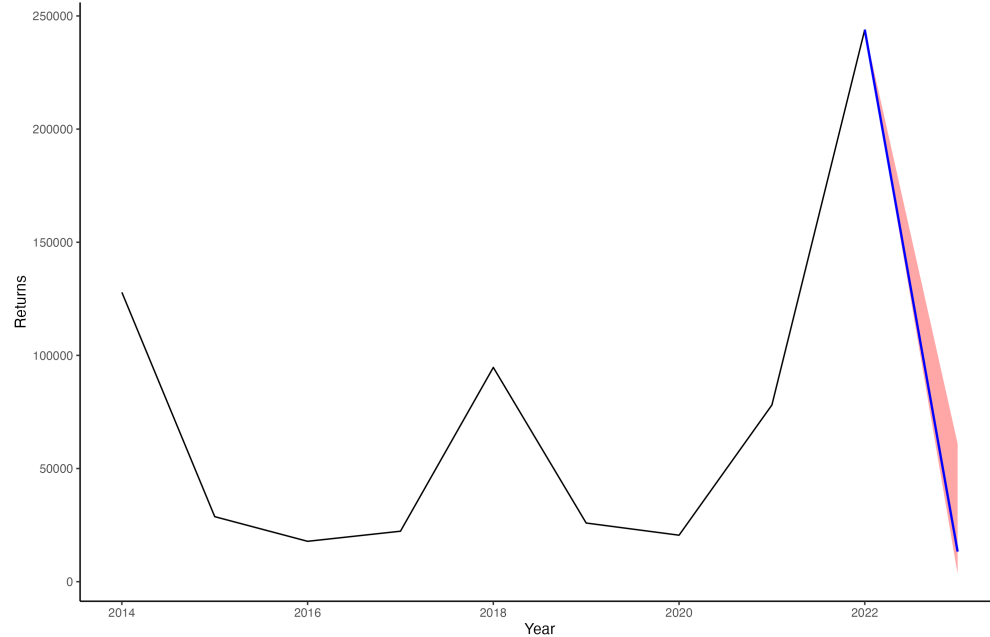


# Recommendation

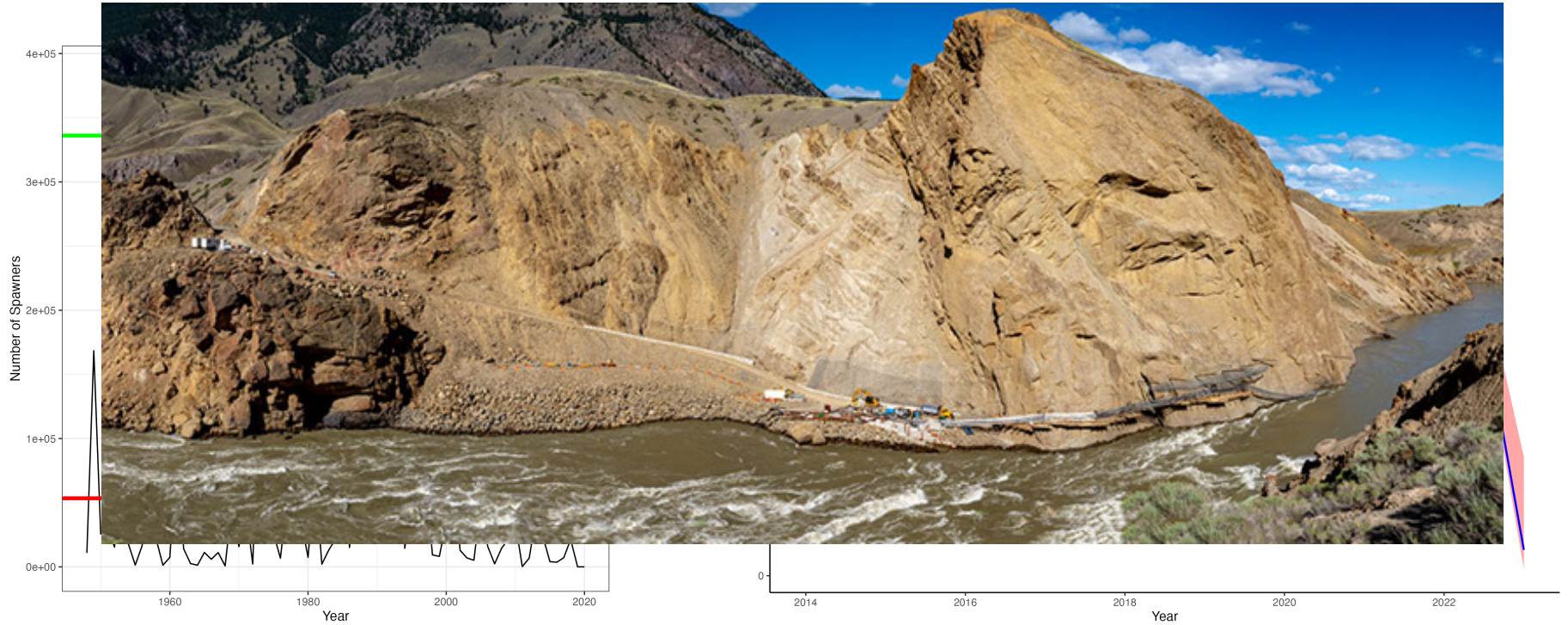
Number of Spawners Per Year 1948-2020



Yearly returns for Early Stuart



# Recommendation



Thank you