

# Preliminary Results WRLCM RocOn COS and PA Analysis

30 March 2019

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# RocOn with Newman

Using equations from Newman (2003) to incorporate the following effects on smolt survival:

- Smolt Size
- Log flow at Hood
- Exports
- DCC Gate Position
- Sacramento Indicator

# Abundance and CRR Metrics

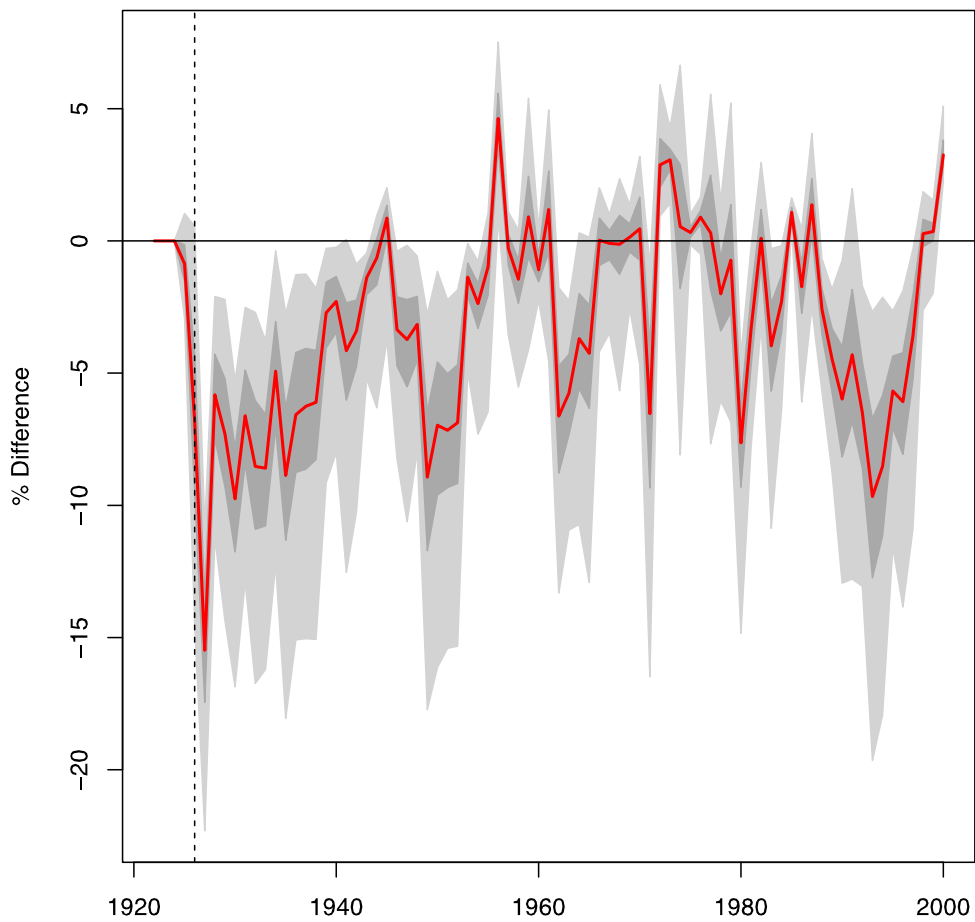
## Abundance

Mean difference in abundance (PA-COS)/COS *100%	95% Interval in difference in abundance (PA-COS)/COS *100%	Probability average abundance in PA > average abundance in COS
-3.05%	(-8.07%, 0.137%)	0.03

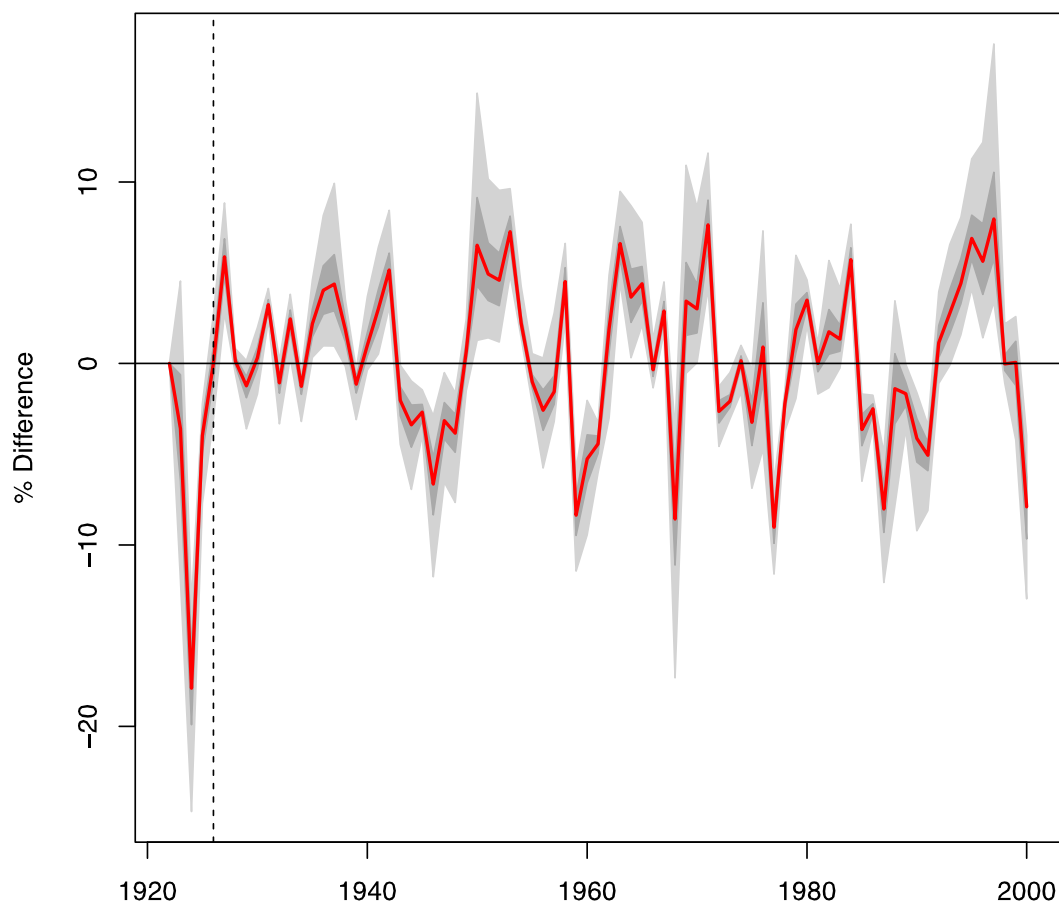
## Cohort replacement rate

Mean magnitude of percent difference (PA-COS)/COS *100%	95% Interval in percent difference of CRR (PA-COS)/COS *100%	Probability that CRR in PA > CRR in COS
0.549%	(0.099%, 1.00%)	0.993

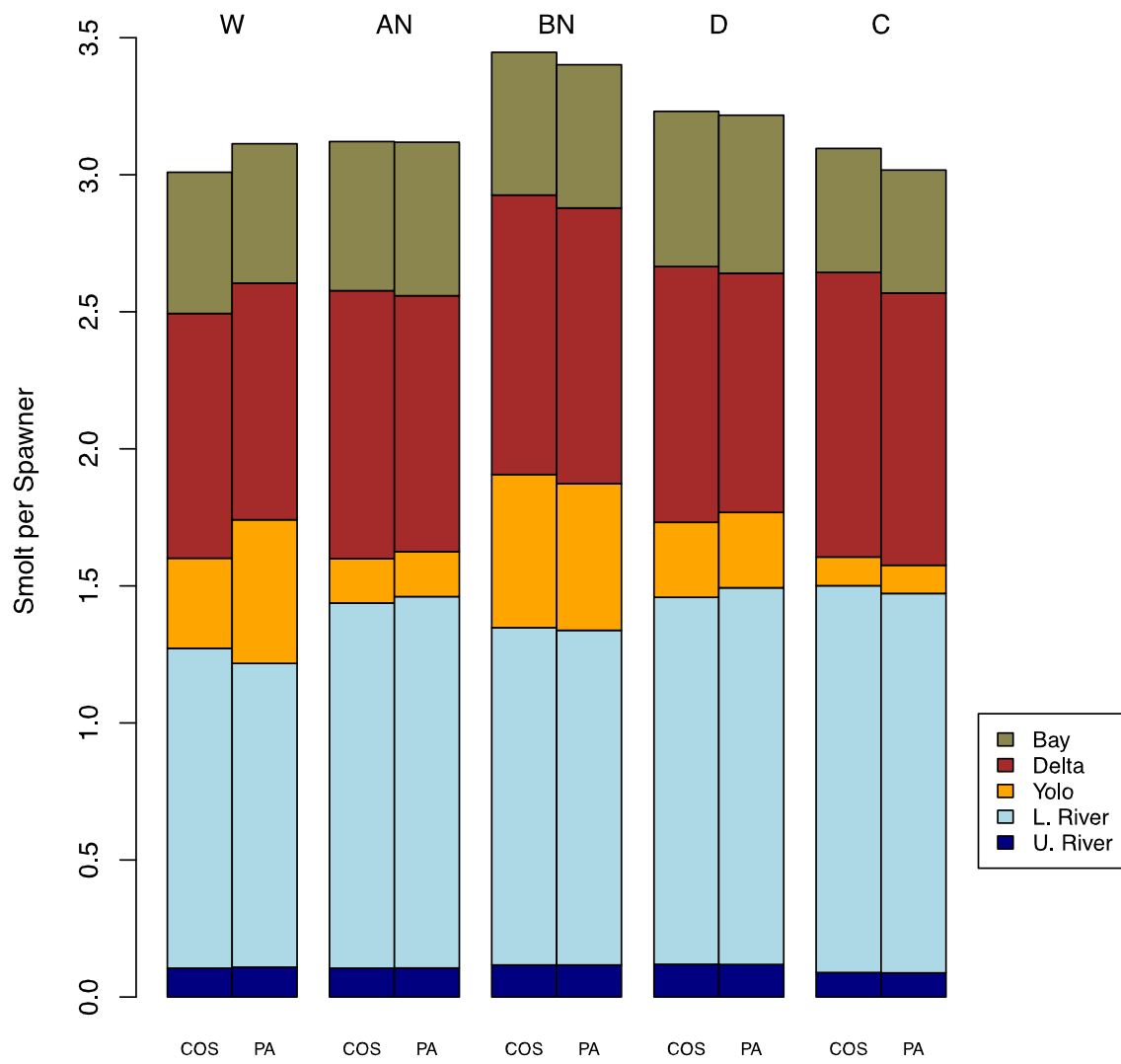
Annual Percent difference in abundance  $(PA - COS)/COS \times 100\%$



# Annual Percent difference in CRR $100\% (PA - COS)/COS$



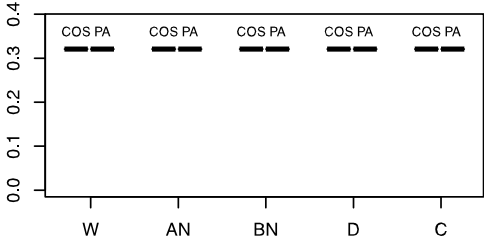
# Freshwater productivity



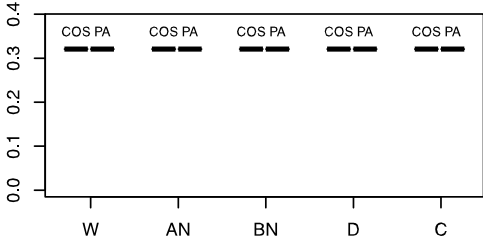
Survival rates by stage

# Egg to fry survival

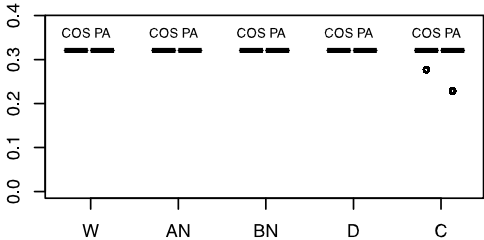
Egg Survival for Spawning in Apr



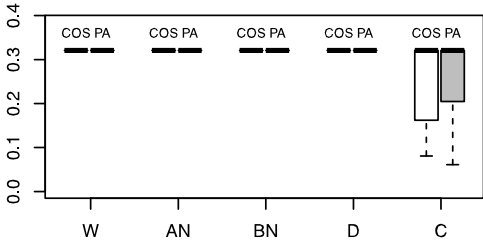
Egg Survival for Spawning in May



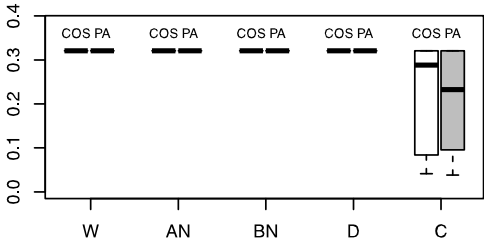
Egg Survival for Spawning in Jun



Egg Survival for Spawning in Jul



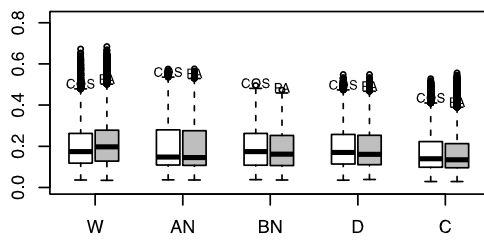
Egg Survival for Spawning in Aug



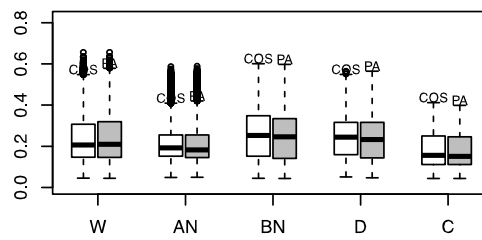


# Upper River smolt survival

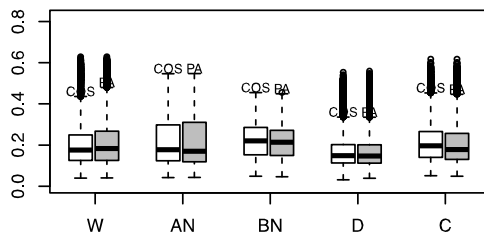
Upper River Smolt Survival (origin to Chipps) in Jan



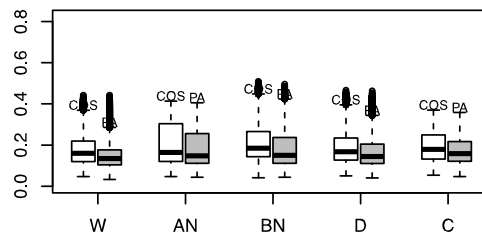
Upper River Smolt Survival (origin to Chipps) in Feb



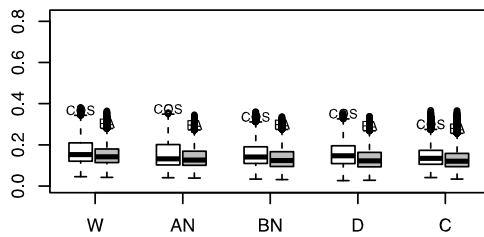
Upper River Smolt Survival (origin to Chipps) in Mar



Upper River Smolt Survival (origin to Chipps) in Apr

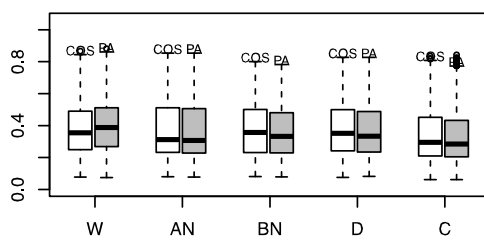


Upper River Smolt Survival (origin to Chipps) in May

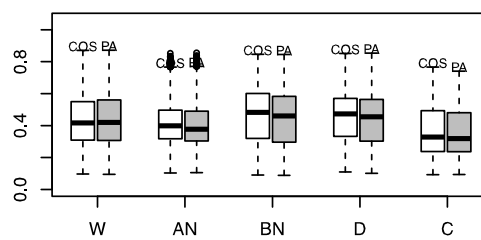


# Lower River smolt survival

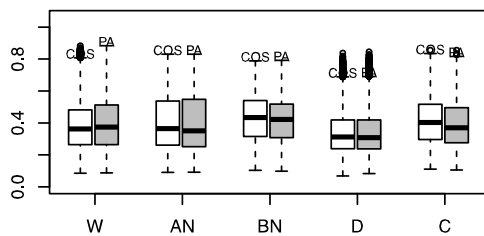
Lower River Smolt Survival (origin to Chipps) in Jan



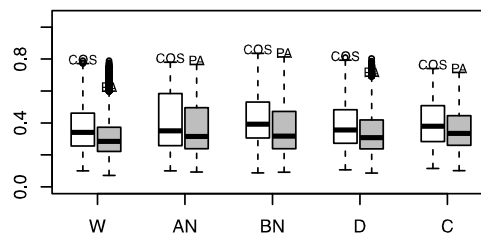
Lower River Smolt Survival (origin to Chipps) in Feb



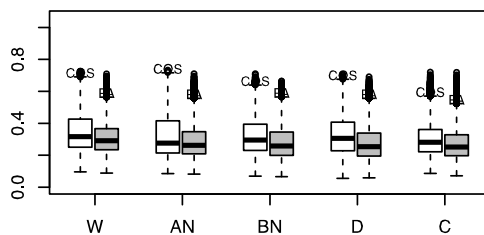
Lower River Smolt Survival (origin to Chipps) in Mar



Lower River Smolt Survival (origin to Chipps) in Apr

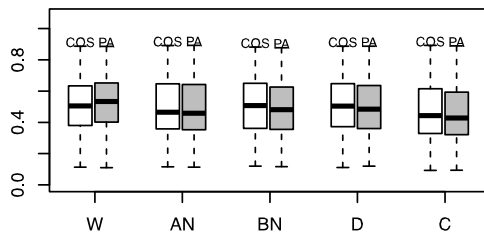


Lower River Smolt Survival (origin to Chipps) in May

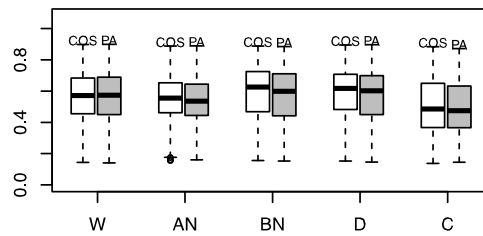


# Yolo survival

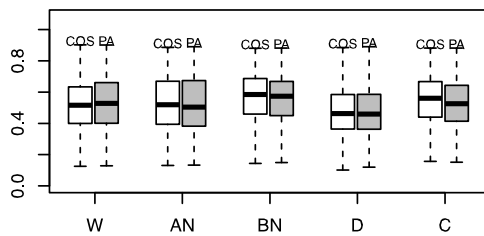
Yolo Smolt Survival (origin to Chipps) in Jan



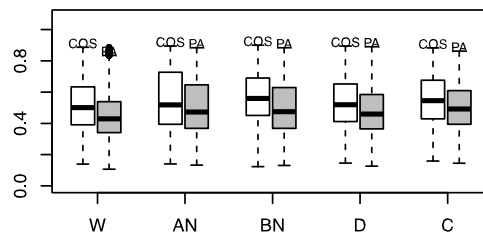
Yolo Smolt Survival (origin to Chipps) in Feb



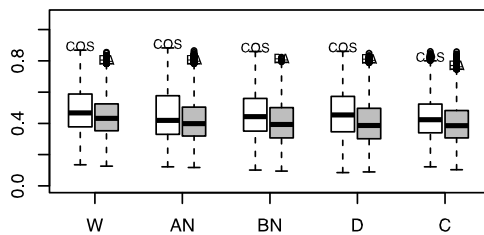
Yolo Smolt Survival (origin to Chipps) in Mar



Yolo Smolt Survival (origin to Chipps) in Apr

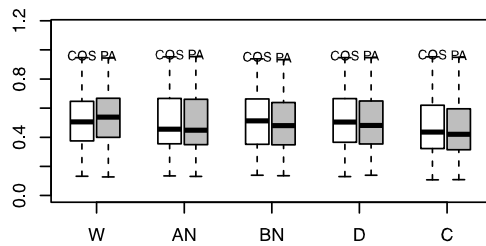


Yolo Smolt Survival (origin to Chipps) in May

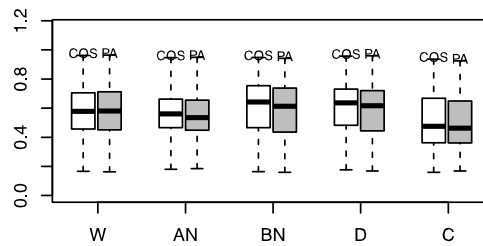


# Delta smolt survival

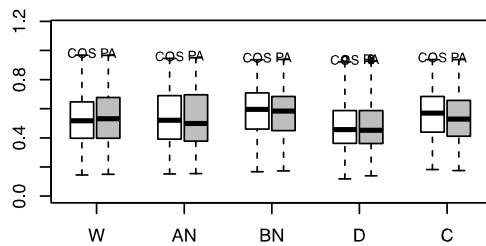
Delta Smolt Survival (origin to Chipps) in Jan



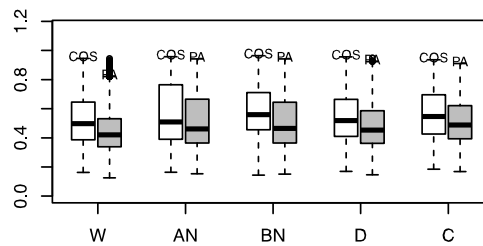
Delta Smolt Survival (origin to Chipps) in Feb



Delta Smolt Survival (origin to Chipps) in Mar



Delta Smolt Survival (origin to Chipps) in Apr



Delta Smolt Survival (origin to Chipps) in May

