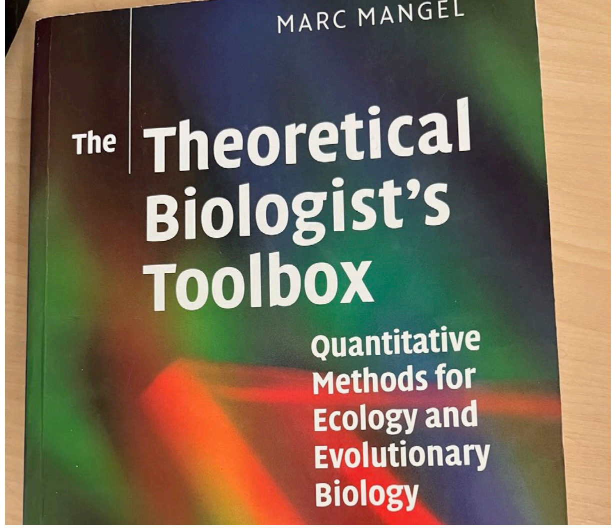
SRFC Workgroup Updates

SRFC WG Meeting 9/3/24



Targets, thresholds, and reference points

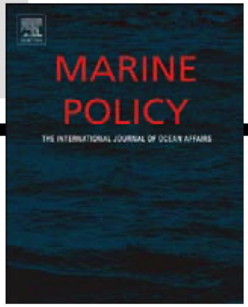
Perhaps a generation ago, MSY was viewed as a "target for management." We are much wiser than that now (Maunder 2002). Whether or not MSY should be viewed as a target, reference point or limit for management is a topic that can be addressed by quantitative means; some entry points are Thompson (1993), Nakken et al. (1996), Schnute

ELSEVIER

Marine Policy

Marine Policy 34 (2010) 193–196

journal homepage: www.elsevier.com/locate/marpol



Short communication

Pretty Good Yield and exploited fishes

Ray Hilborn

School of Aquatic and Fishery Sciences, Box 355020, University of Washington, Seattle, WA 98195-5020, USA

A R T I C L E   I N F O

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A B S T R A C T

While much of traditional fisheries theory has concentrated on maximum or optimum yield, the reality of fisheries management is that biomass yield is only one of the several indicators of fisheries performance, and desired outcomes generally only need to provide something near the maximum possible yield. A range of policies are explored to find those that produce "Pretty Good Yield" defined as sustainable yield at least 80% of the maximum sustainable yield. Such yields are generally obtained over a broad range of stock sizes (20–50% of unfished stock abundance), and this range is not sensitive to the population's basic life history parameters such as natural mortality rate, somatic growth rate, or age at maturity. The most important biological parameter determining this range is the intensity of

C.1 R_{MSY} / R_{MP} Idea

For Rickers considered to inform F_{MSY} proxy update

Yaquina

Klamath Fall

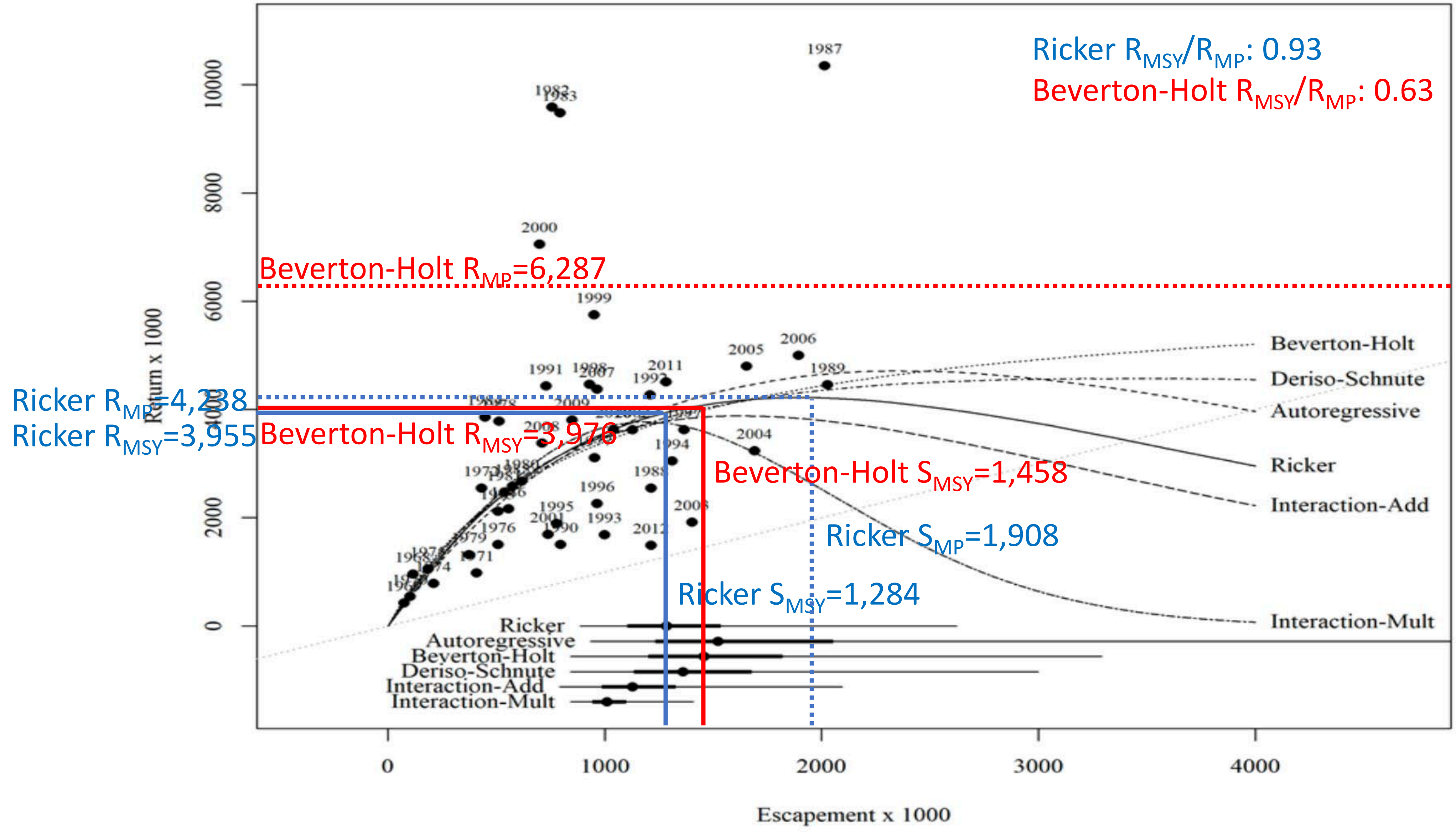
Rogue Fall

$$\frac{R_{MSY}}{R_{MP}}$$

Elk

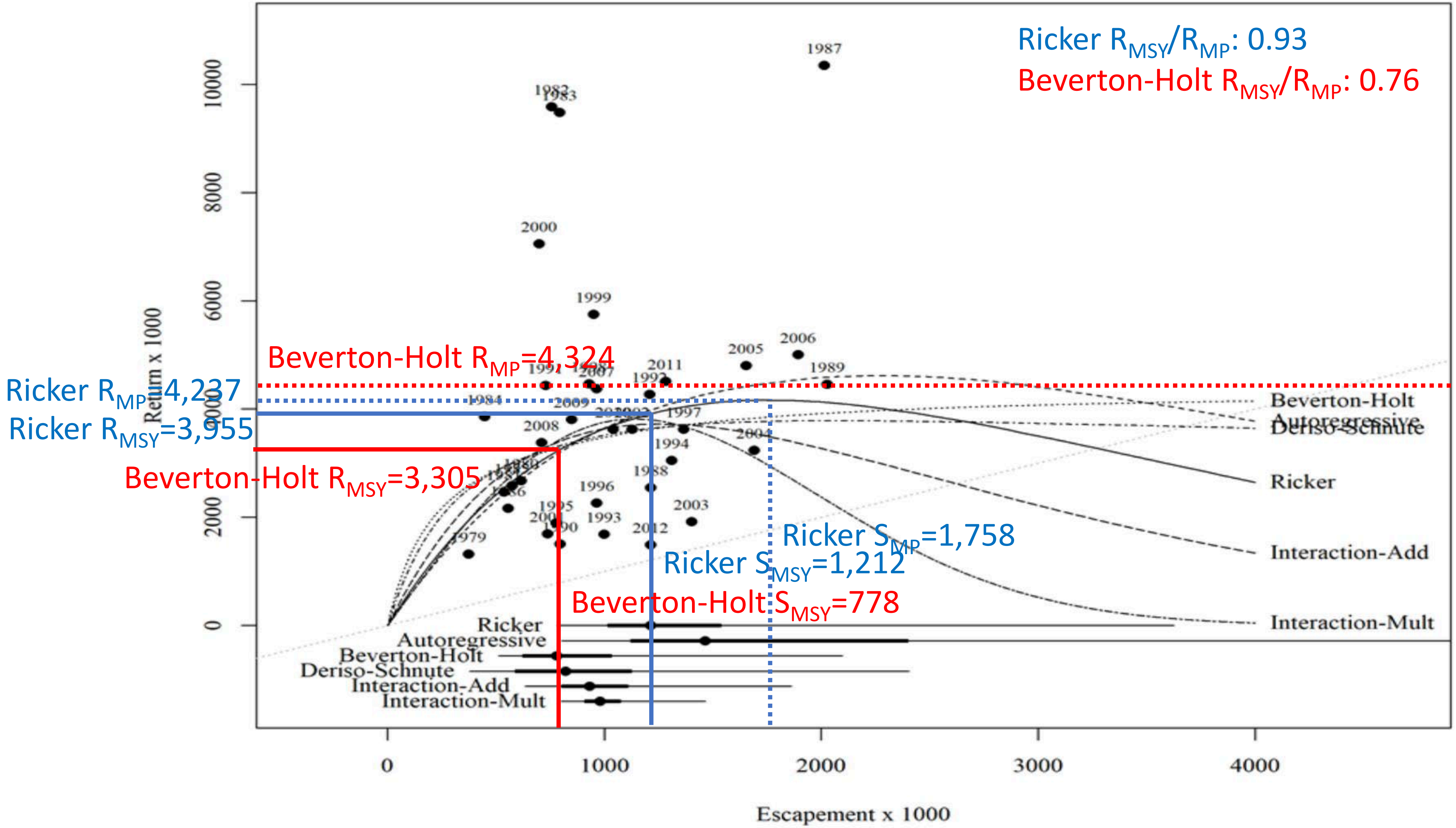
F_{MSY}

Kenai sockeye 1968-2012



- [Hasbrouck et al. 2020]

Kenai sockeye 1979-2012



- [Hasbrouck et al. 2020]

C.2 Environmental covariates

Examining additional covariates in Munsch approach

Current indicators: Spawners + Verona Flow during outmigration

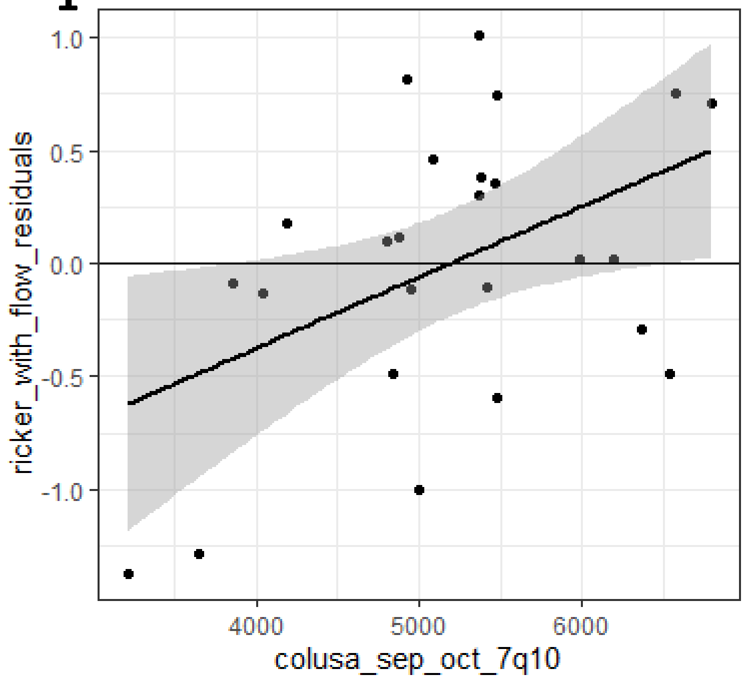
- Check for effects of other gages instead of Verona suggest little improvement with other gages

Other possible indicators within spawning – outmigration time frame

1. Poor conditions for spawners (Fall spawning low flows)
2. Redd dewatering (Winter tributary low flows)
3. Outmigration temperature in Spring

So, maybe model needs more parameters?

1



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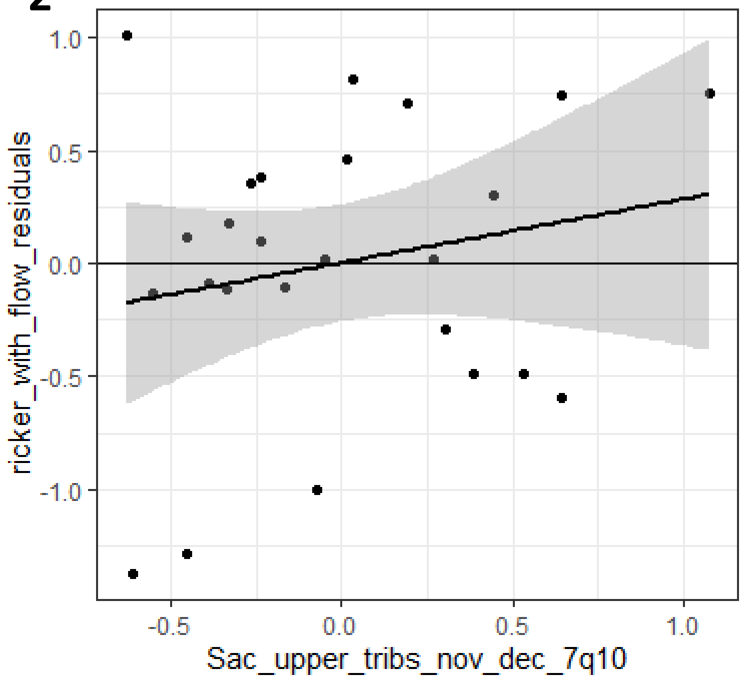

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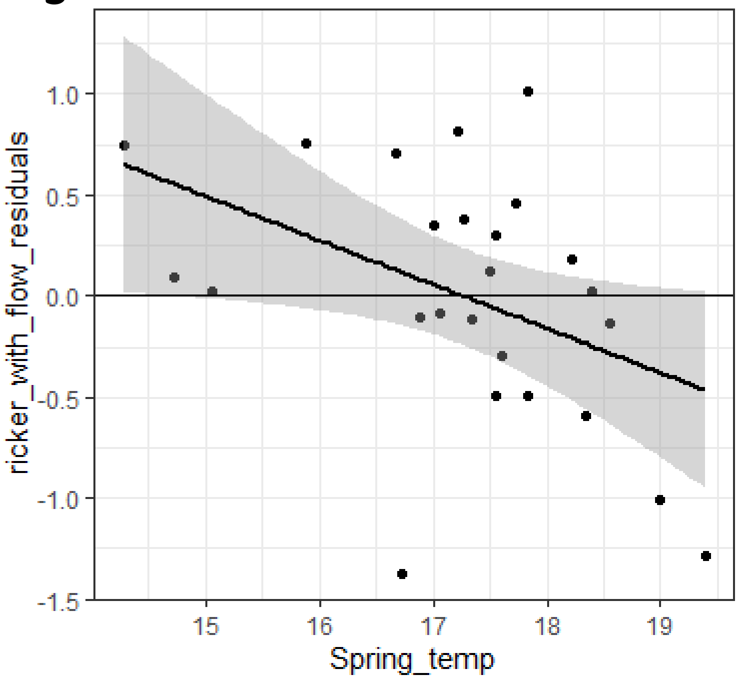

C.3 Upper Sacramento S-R recruitment input uncertainty

Confidence intervals (CI) were constructed around $\hat{P}$ using eq. 13.

13.

$$P \pm t_{\frac{\alpha}{2}, n-1} \sqrt{Var(\hat{P})}$$

Annual JPI's were estimated by summing $\hat{P}$ across weeks.

14.

$$JPI = \sum_{week=1}^{52} \hat{P}$$

Voss and Poytress (2022)

C.4 River harvest versus run size

Unconstrained linear regression
(although 0-intercept would make sense):

River Harvest = 1,407 + 0.13 x Run Size
$p < 2 \times 10^{-16}$
$R^2=0.88$

Excluding years of zero harvest:
Minimum river harvest rate: 0.2% [2008]
(then 2% [‘10], 7% [‘22], overall 5/39 below 10%)

Maximum river harvest rate: 33% [2017]
(3/39 years above 20%)

C.5 Meeting hatchery needs

C.6 Additional considerations