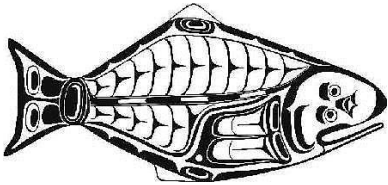


Harvest policy considerations on retrospective bias and biomass projections

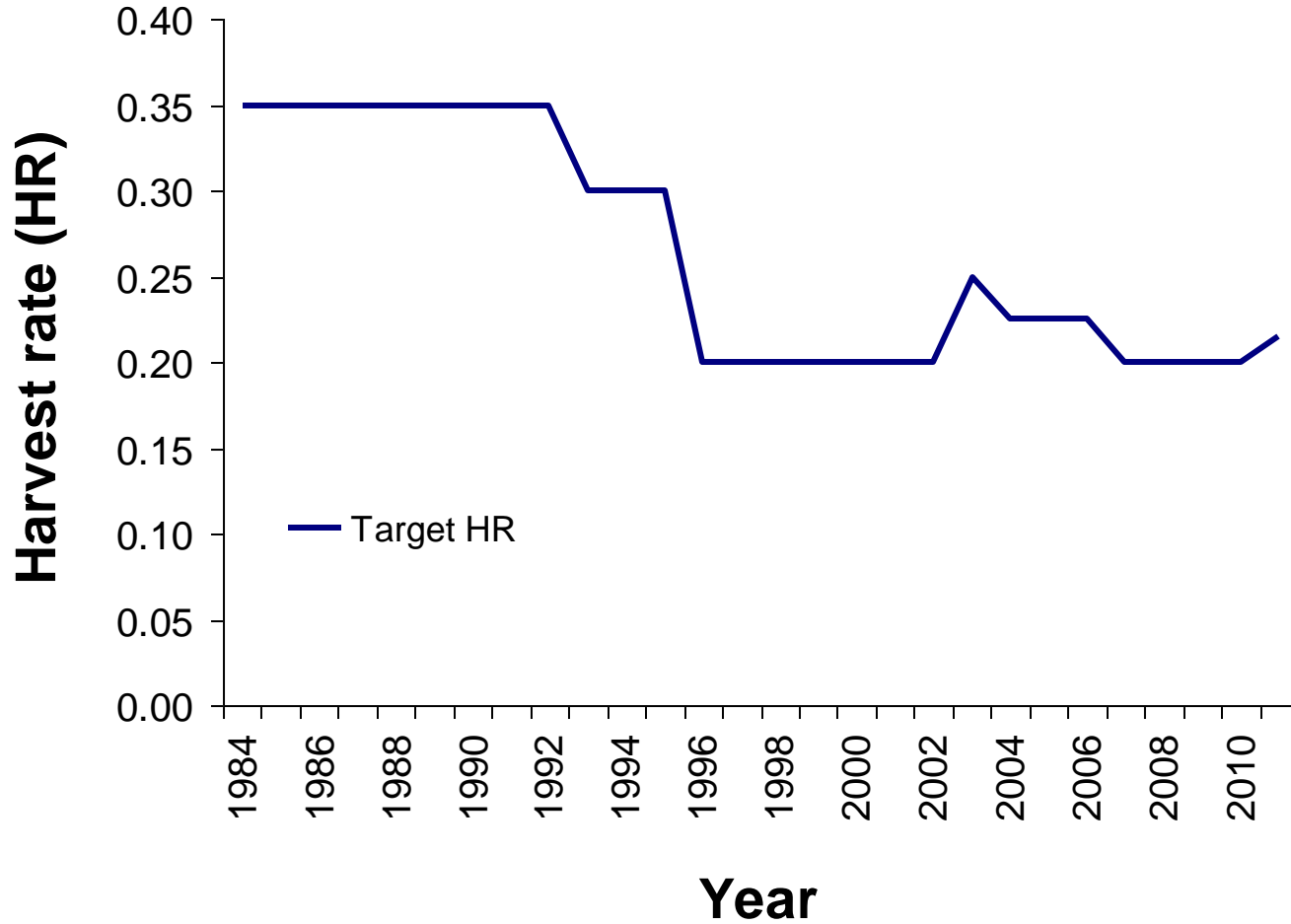
Juan Valero

Blue Book (p. 59) and RARA (p. 311) related reports

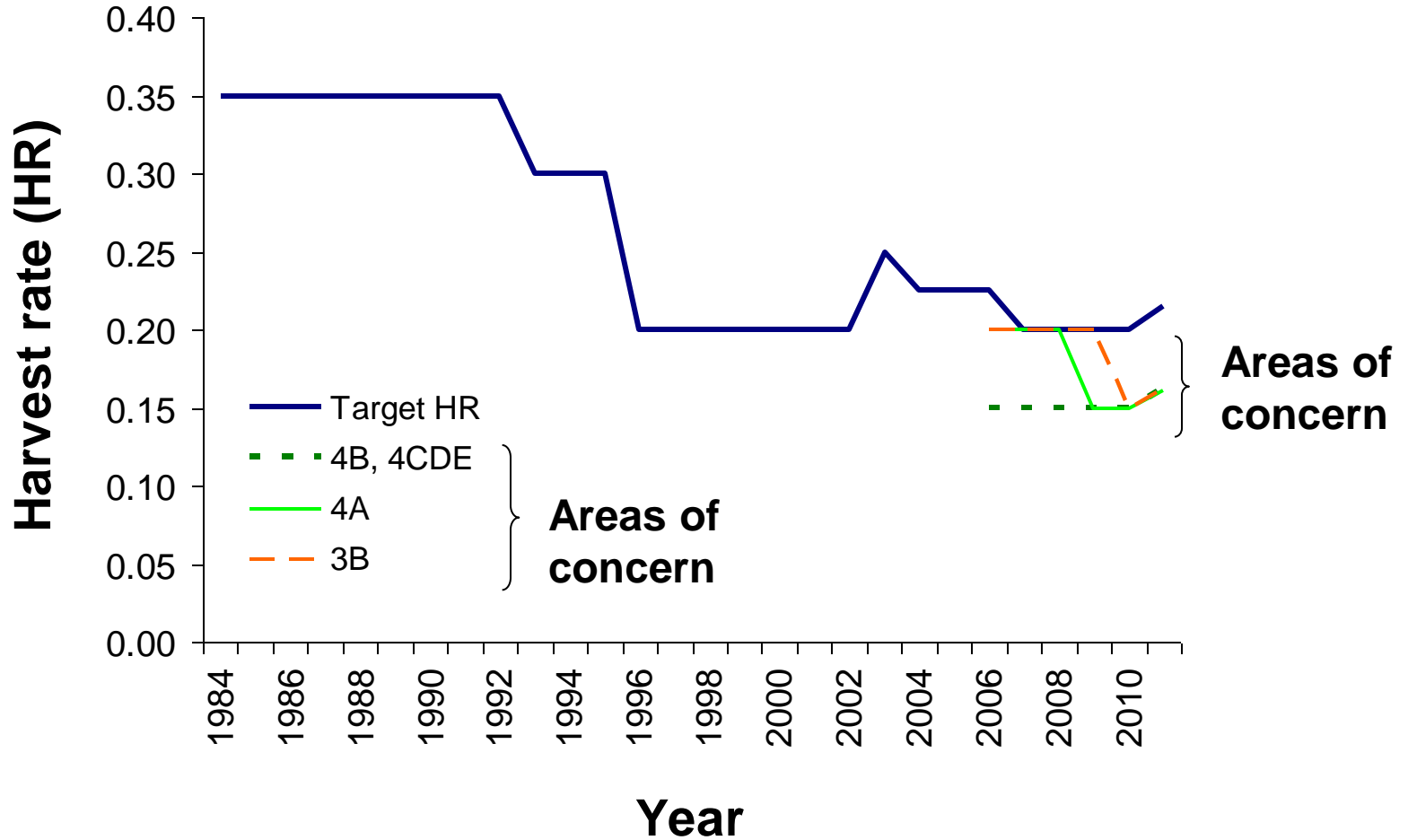


88th IPHC Annual Meeting, Anchorage January 23-27, 2012

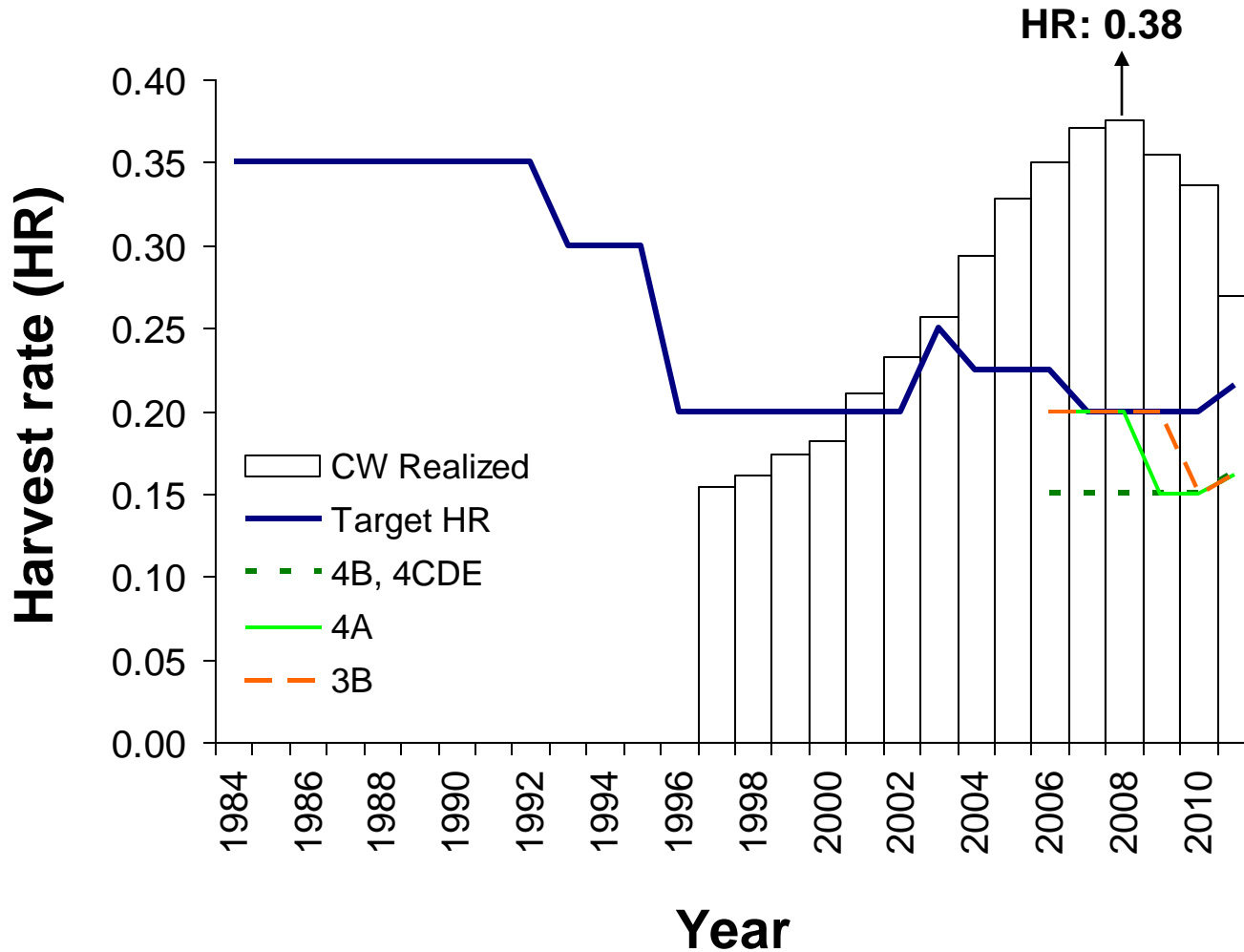
History of target harvest rate



History of target harvest rate

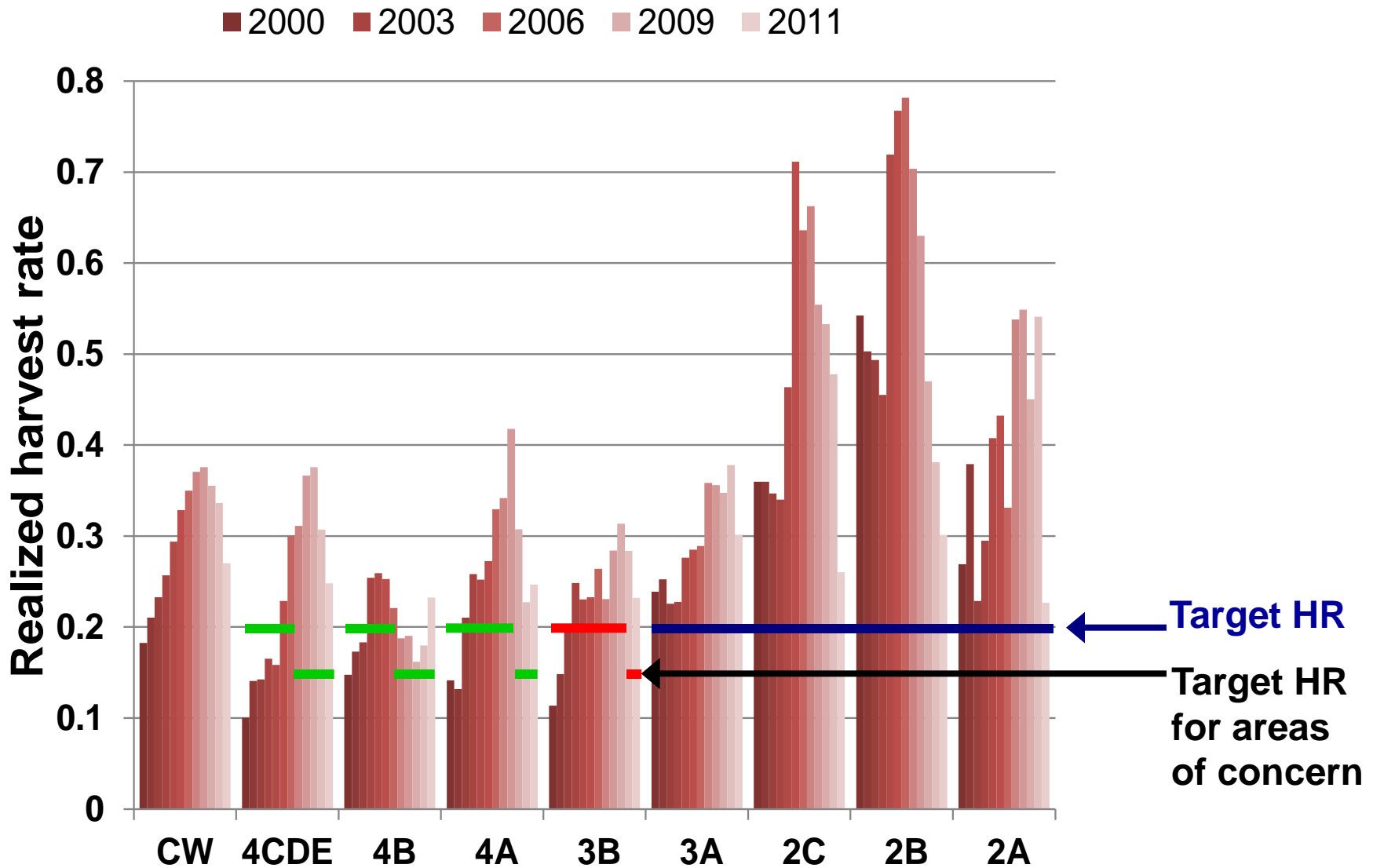


Target vs realized harvest rates



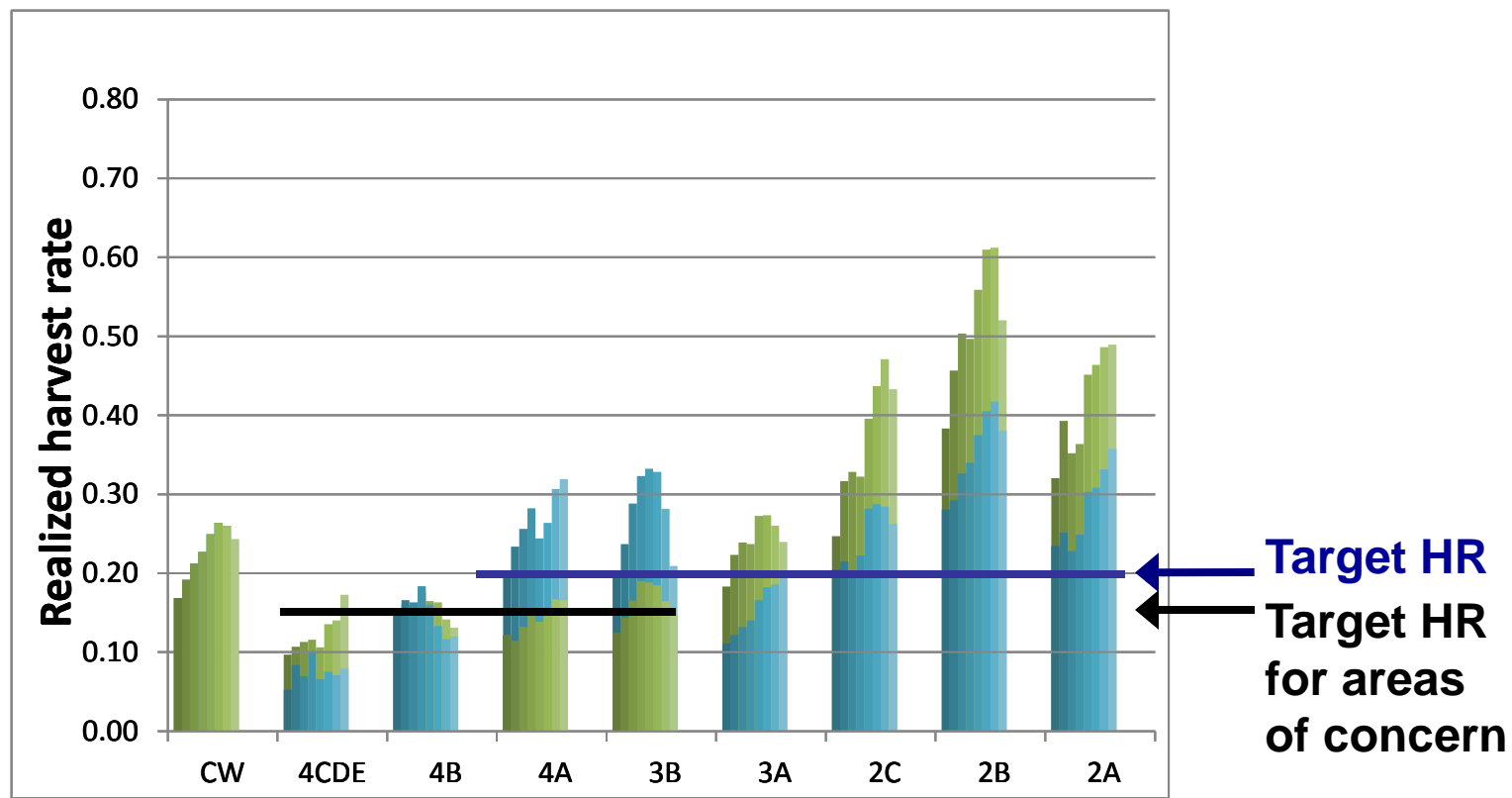
Realized harvest rates from Coastwide assessments (CW) and survey partition of biomass

and survey partition of biomass



Departures between target and realized harvest rates

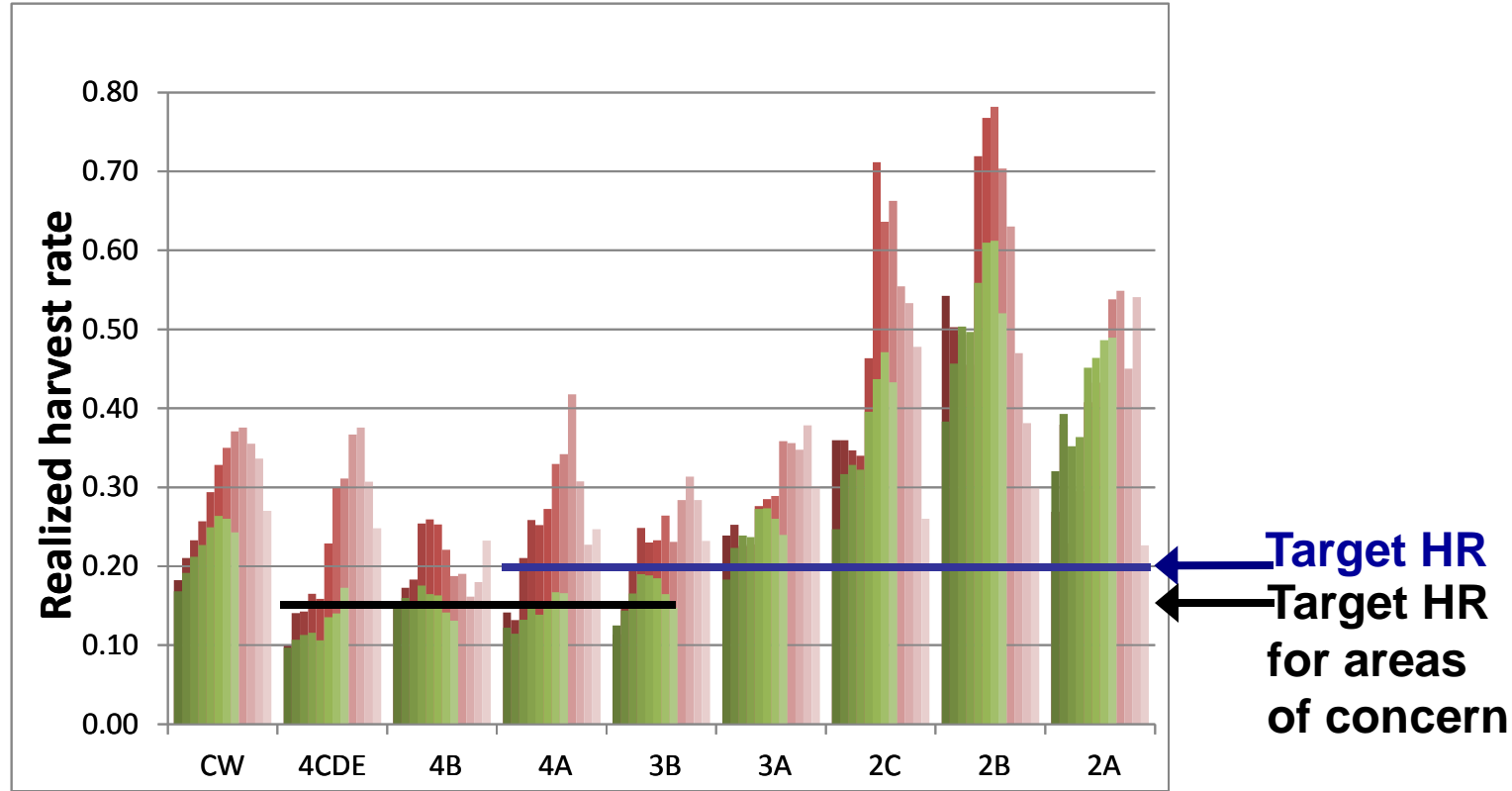
- 2000 to 2007 estimated by 2007 Coastwide assessment
- 2000 to 2007 estimated by 2007 Closed-area assessments



Misspecification of closed-area assessments due to unaccounted-for halibut migration

Departures between target and realized harvest rates

- 2000 to 2011 estimated by 2011 Coastwide assessment
- 2000 to 2007 estimated by 2007 Coastwide assessment



Underestimation of harvest rates, overestimation of EBio due to ongoing retrospective bias

What is a retrospective bias?

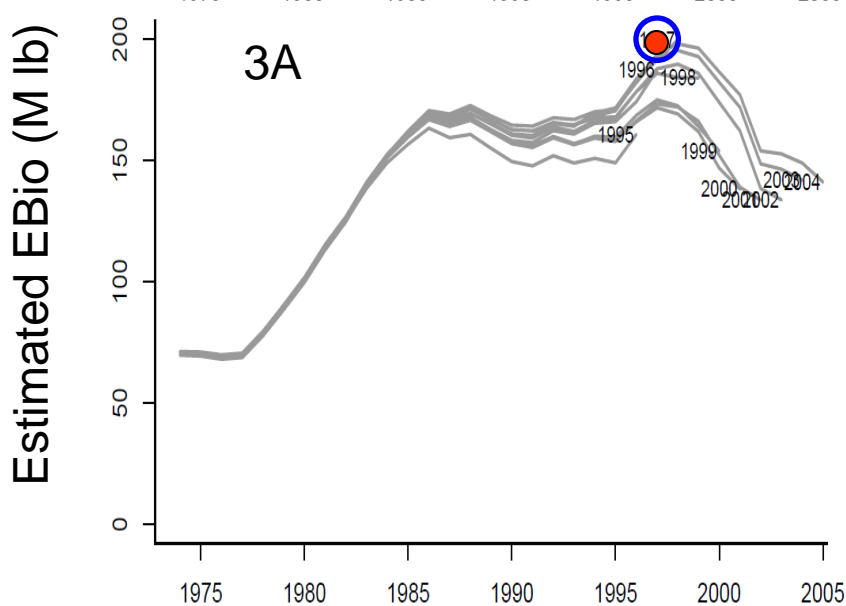
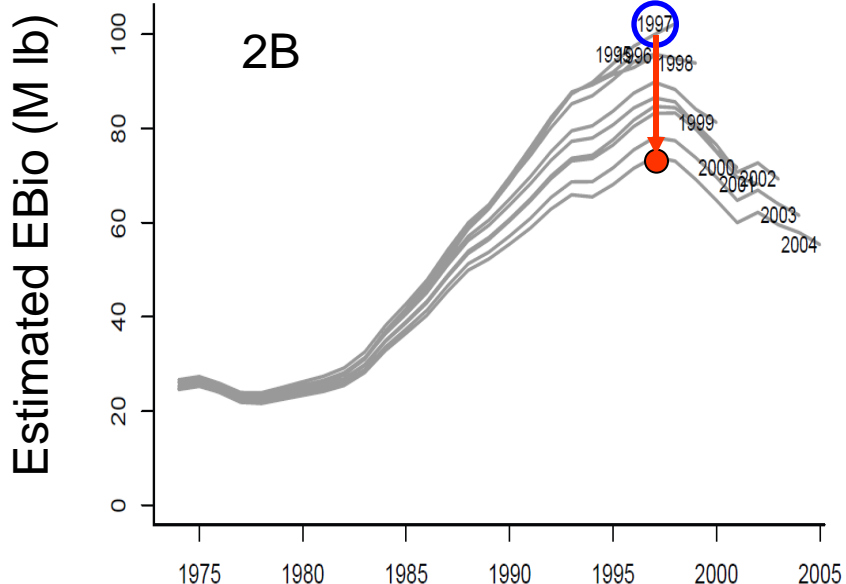
Each year the stock assessment estimates the most current biomass and also the historical biomass series

Retrospective bias occurs when the historical biomass series is consistently overestimated or underestimated

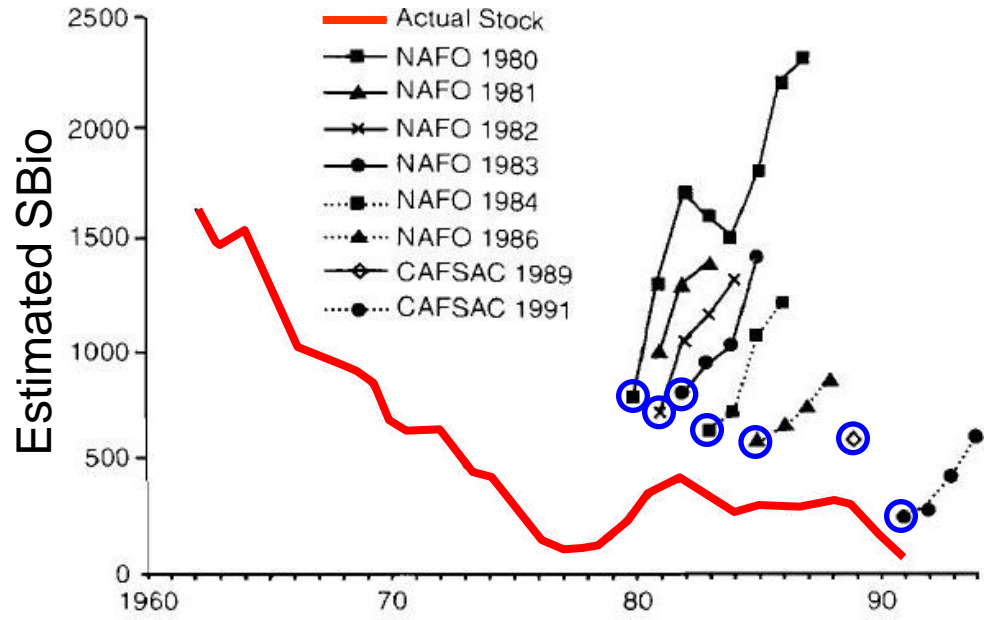
Recent stock assessments for Pacific halibut have consistently **overestimated biomass** and **underestimated harvest rates** due to this bias

Retrospective behavior and retrospective bias

Pacific halibut closed-area assessments



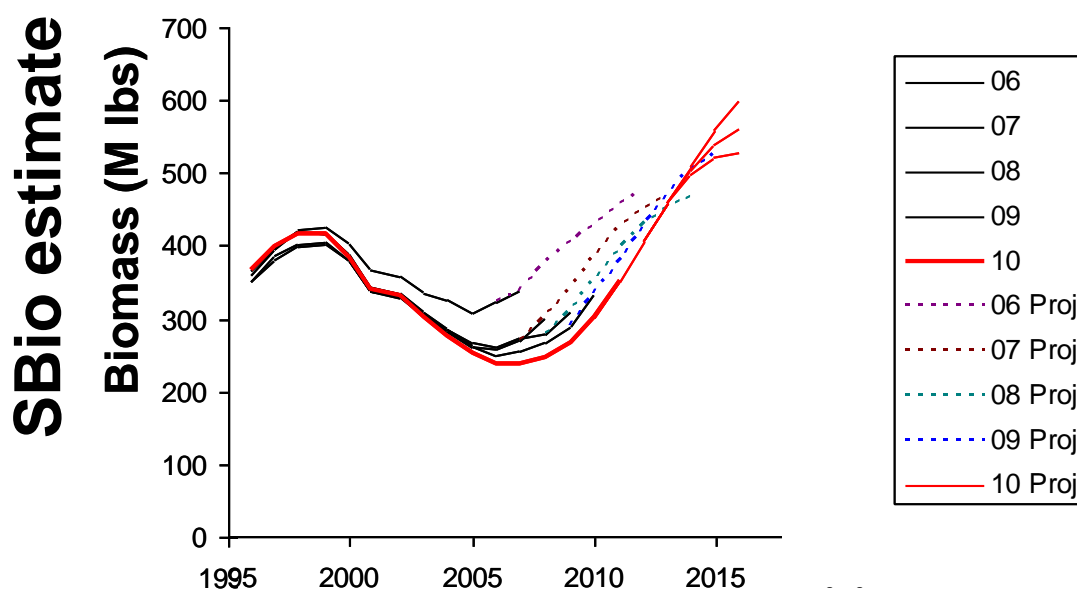
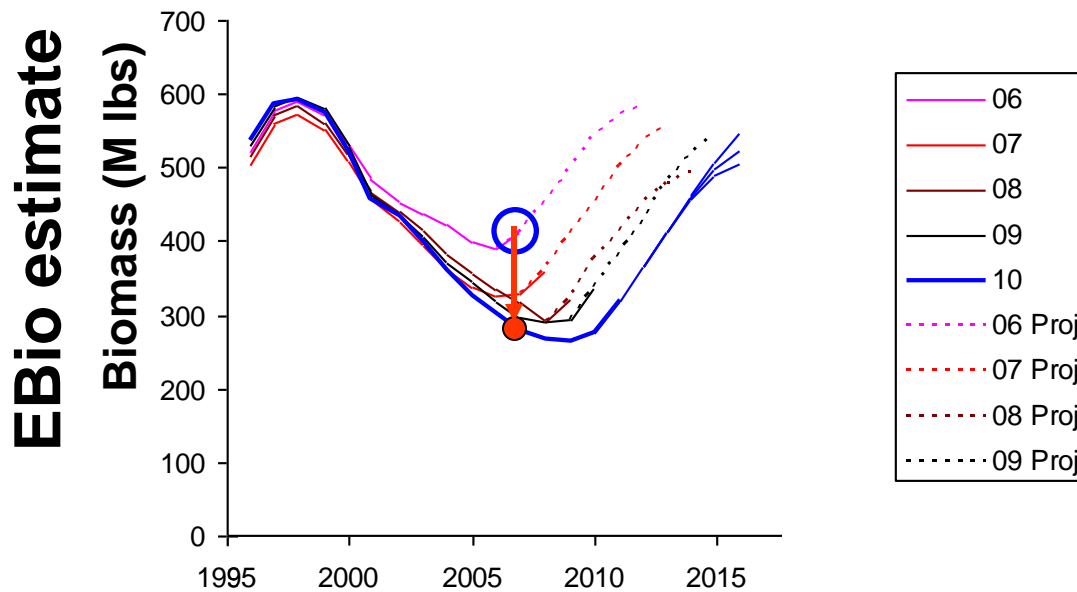
Northern cod assessments and projections



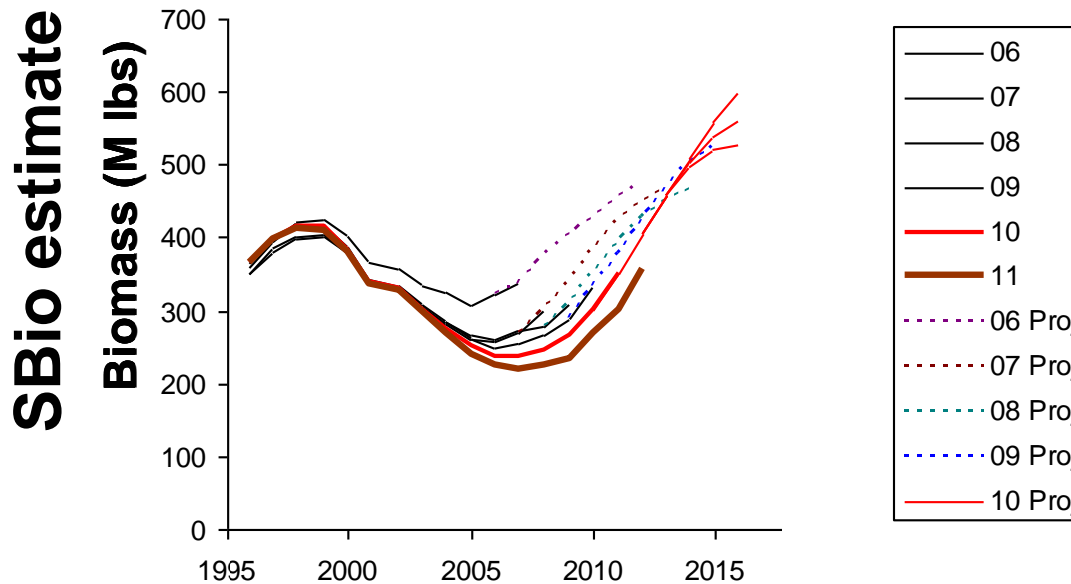
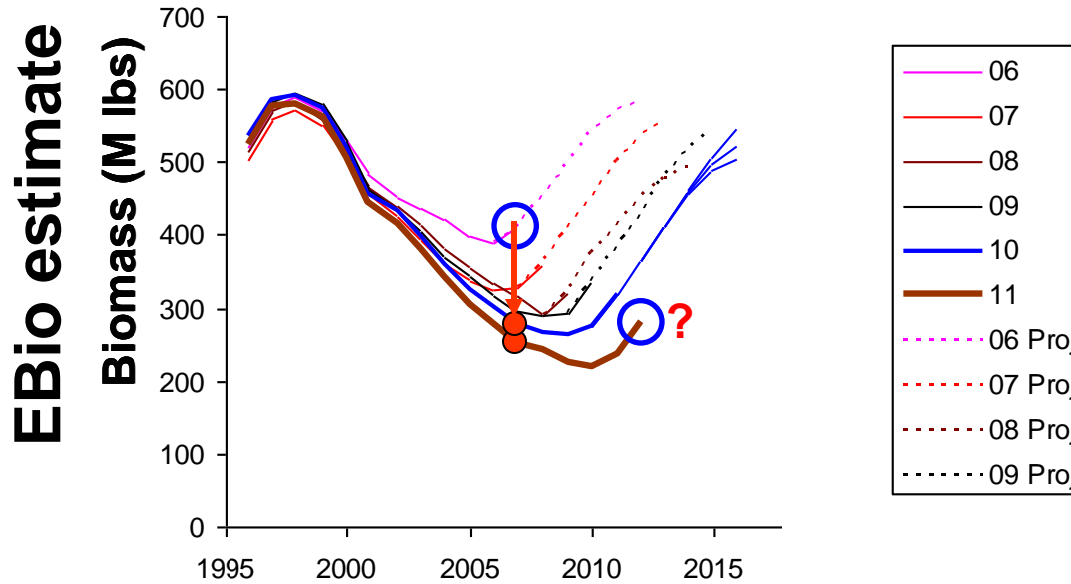
From Walters and Maguire 1996

From Clark and Hare 2006

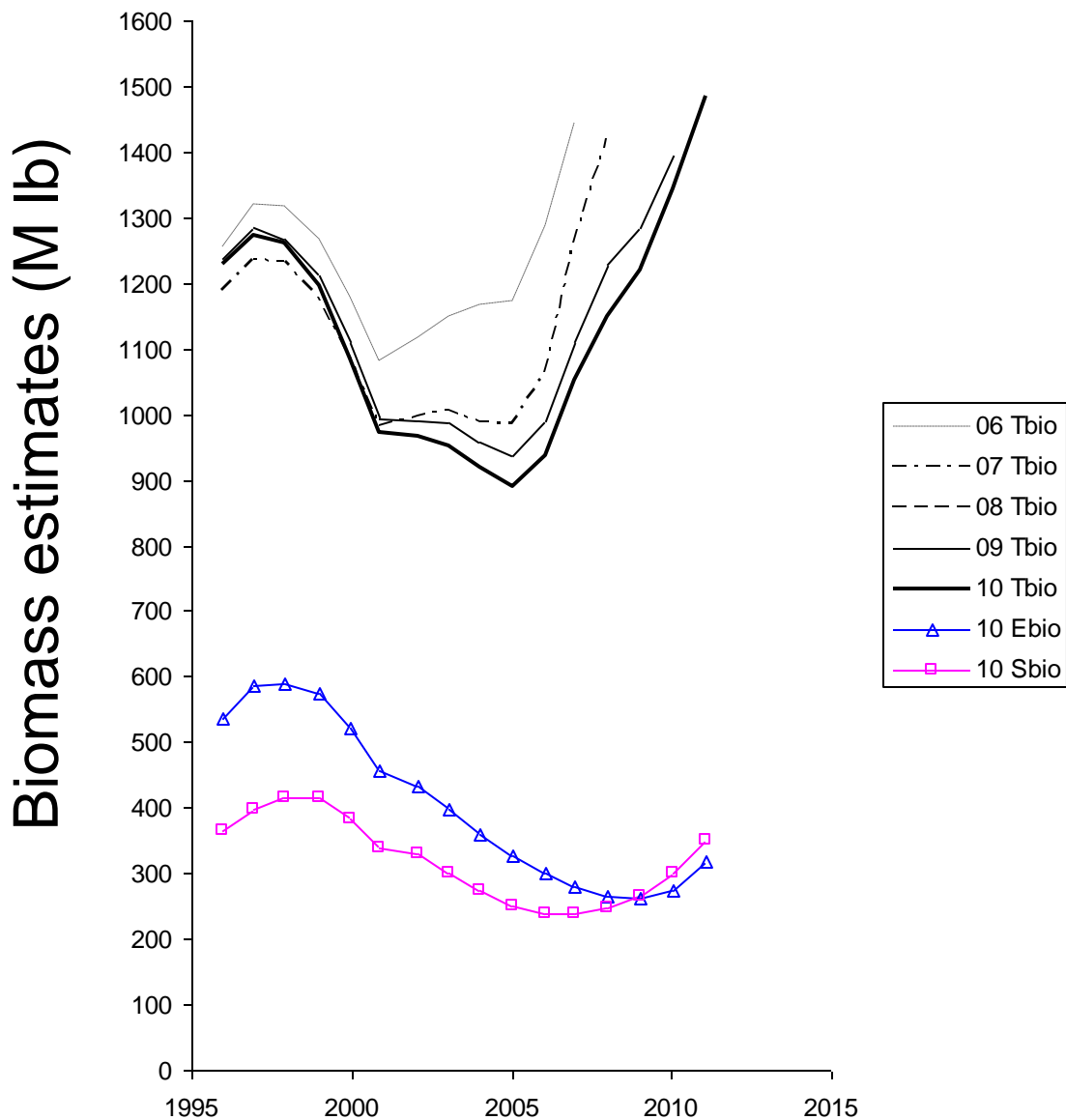
Retrospective pattern as of 2010 CW SA



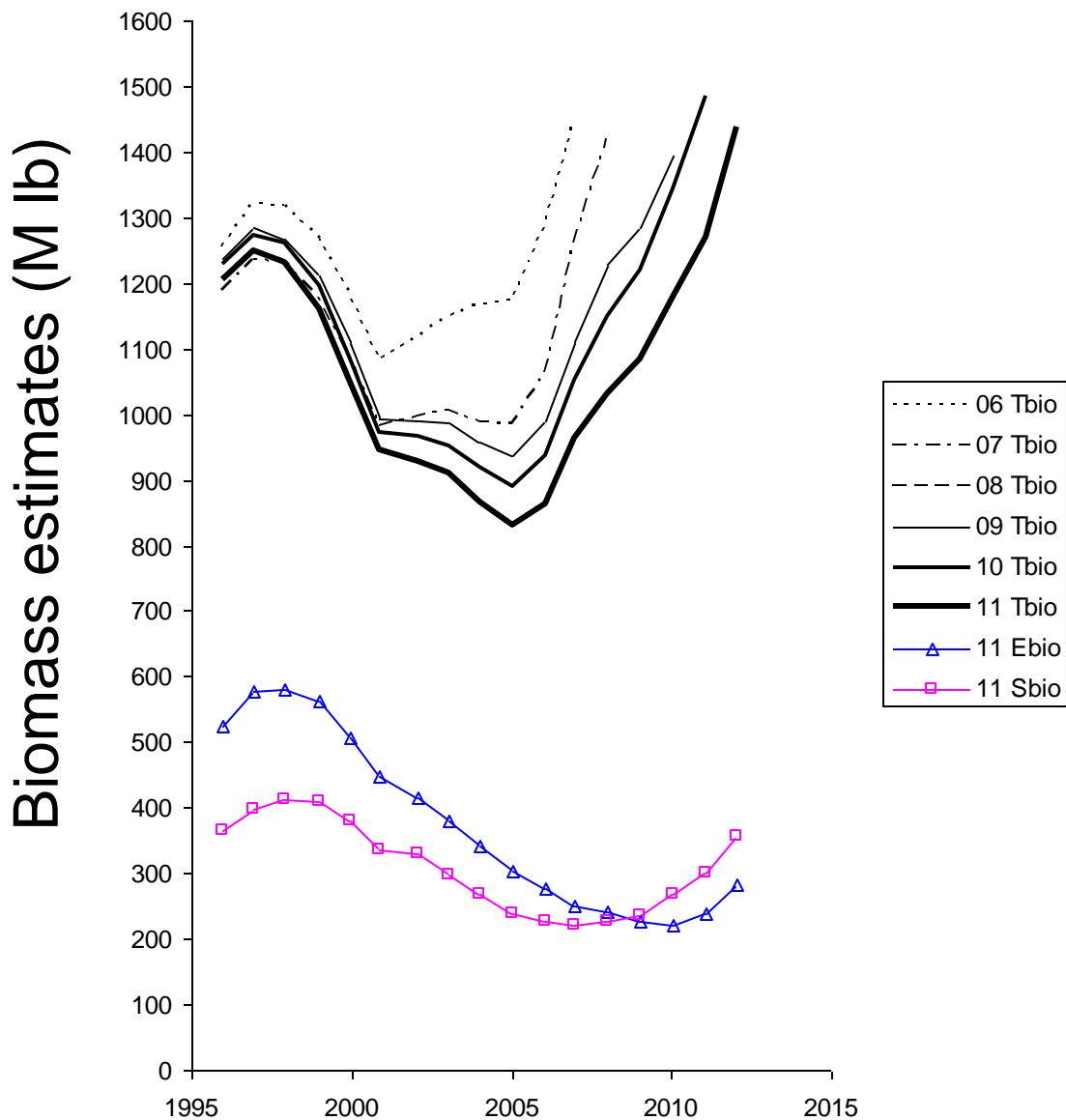
Retrospective pattern as of 2011 CW SA



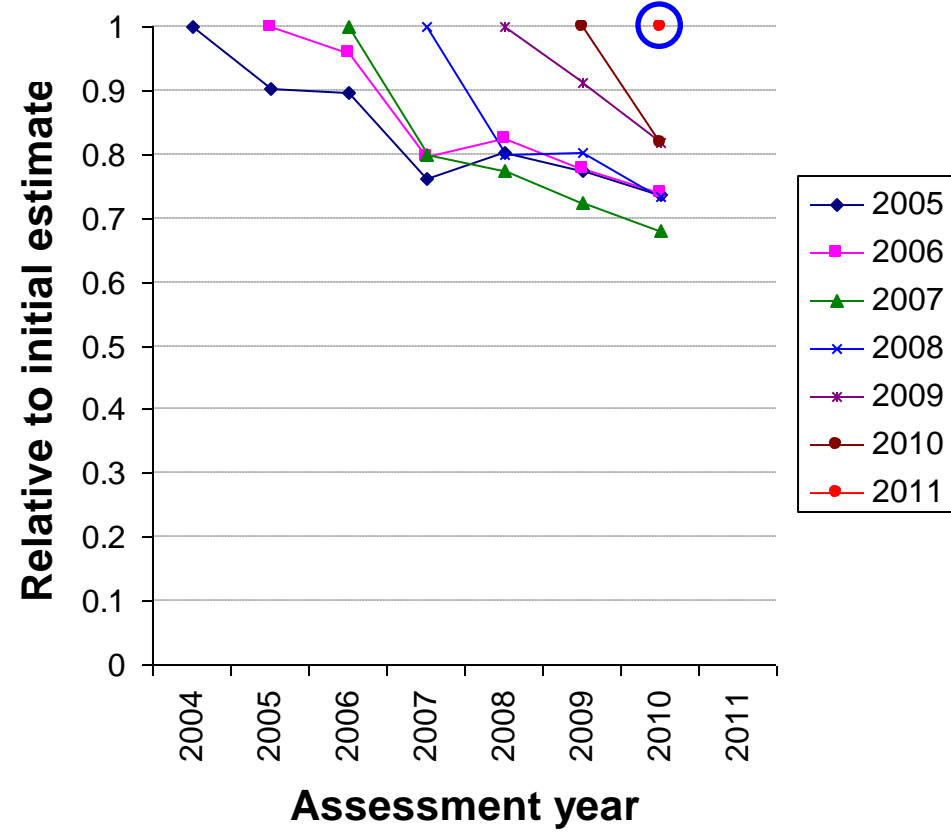
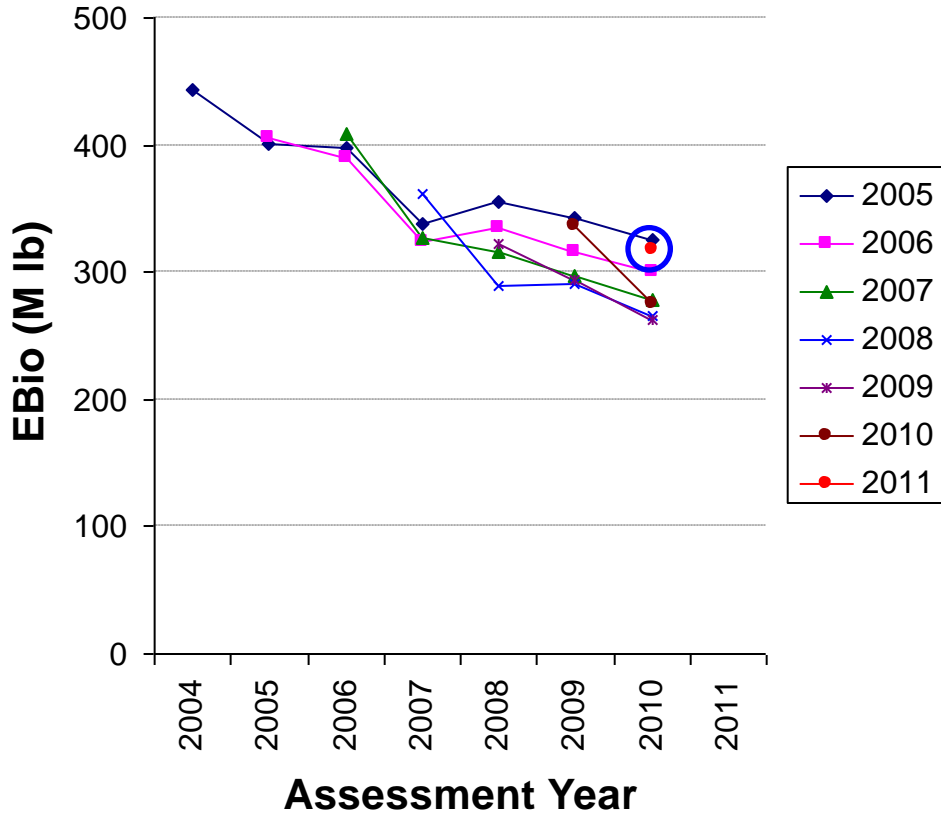
Retrospective pattern as of 2010 CW SA



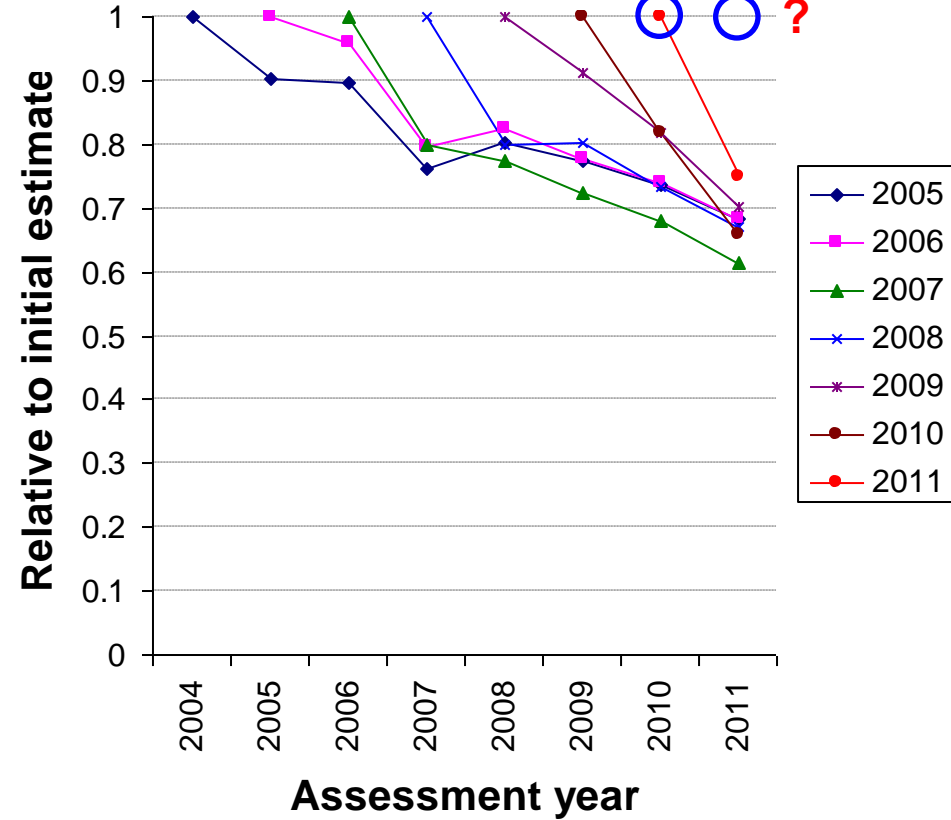
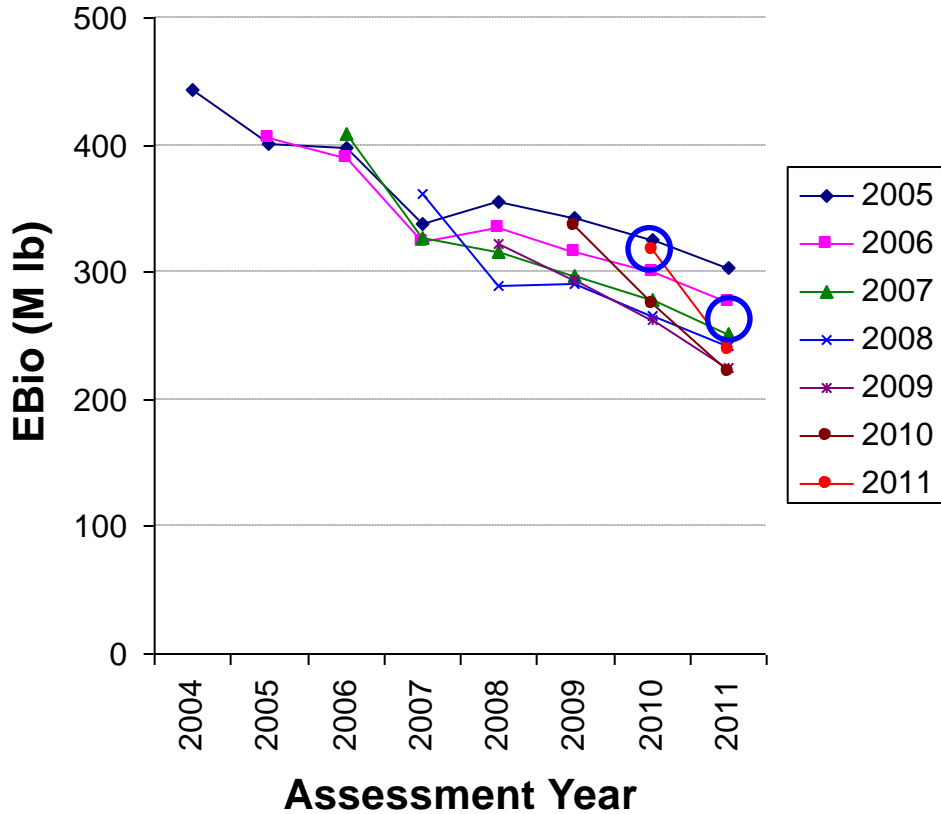
Retrospective pattern as of 2011 CW SA



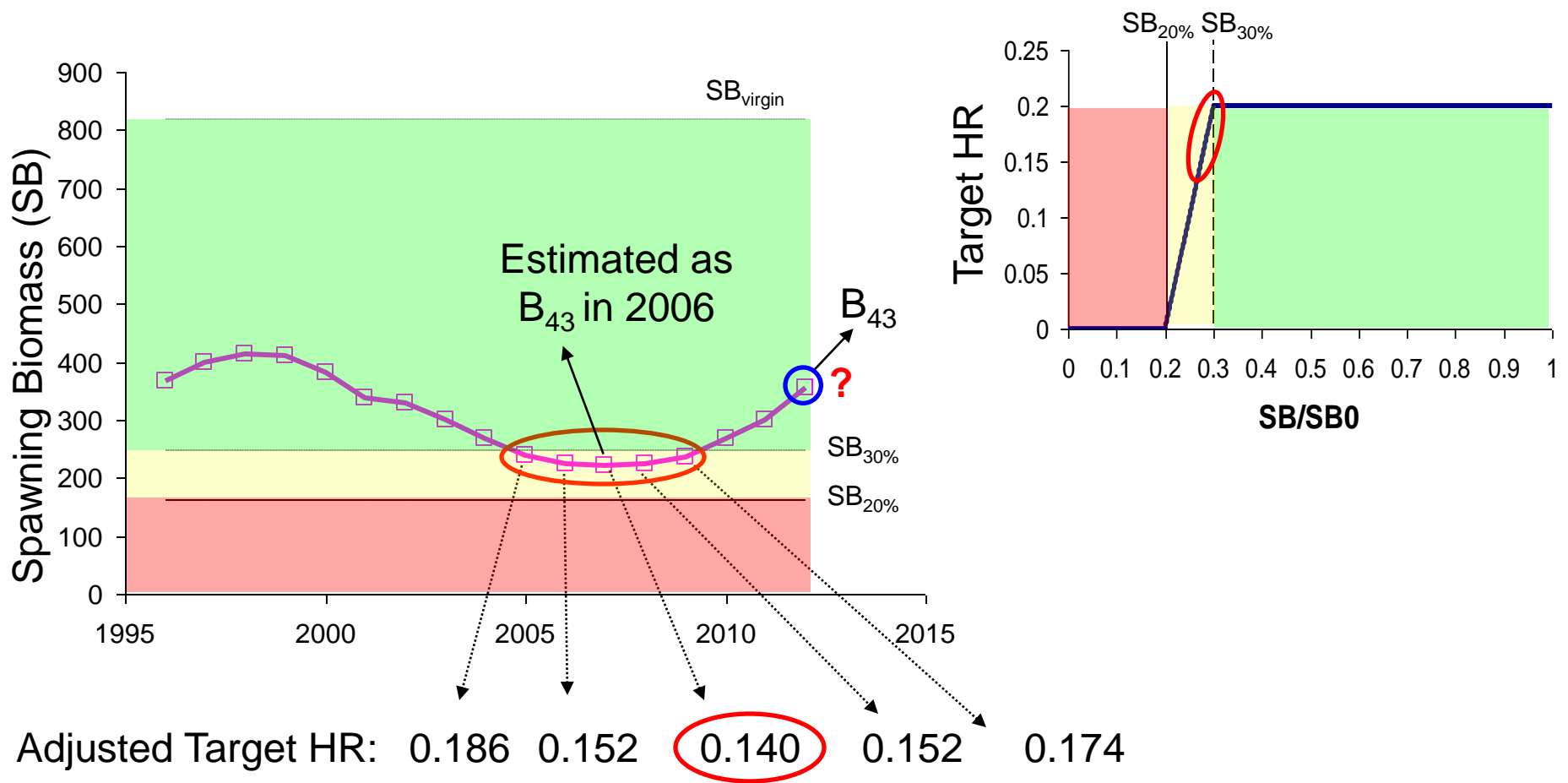
Retrospective pattern of EBio 2004-2010



Retrospective pattern of EBio 2004-2011

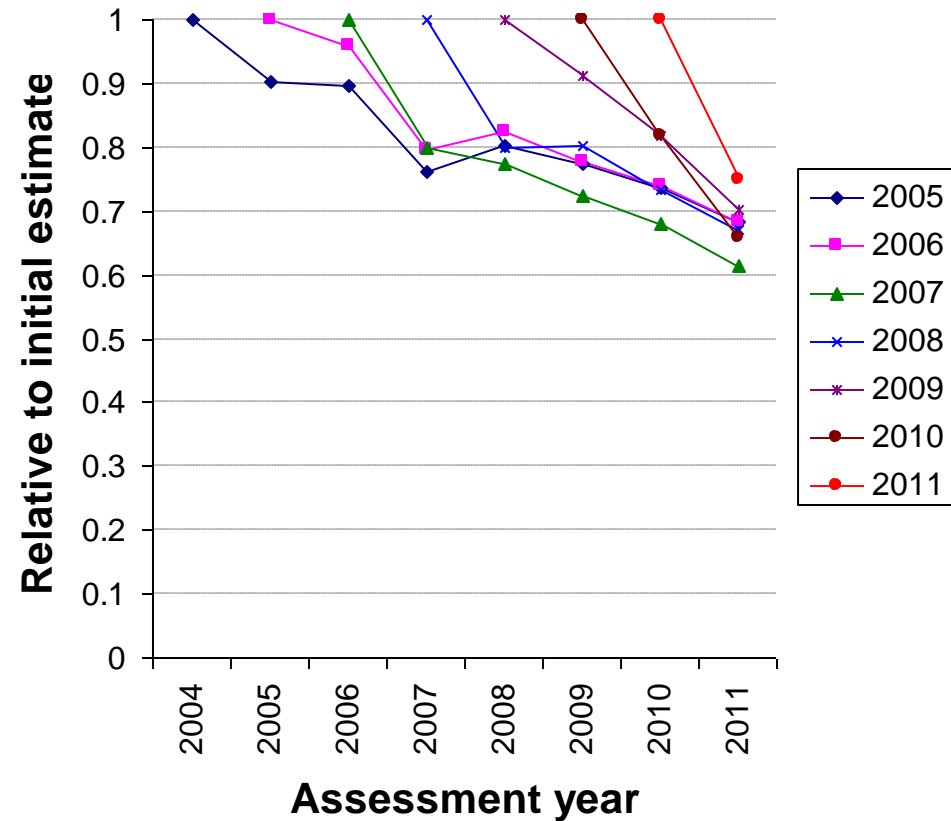
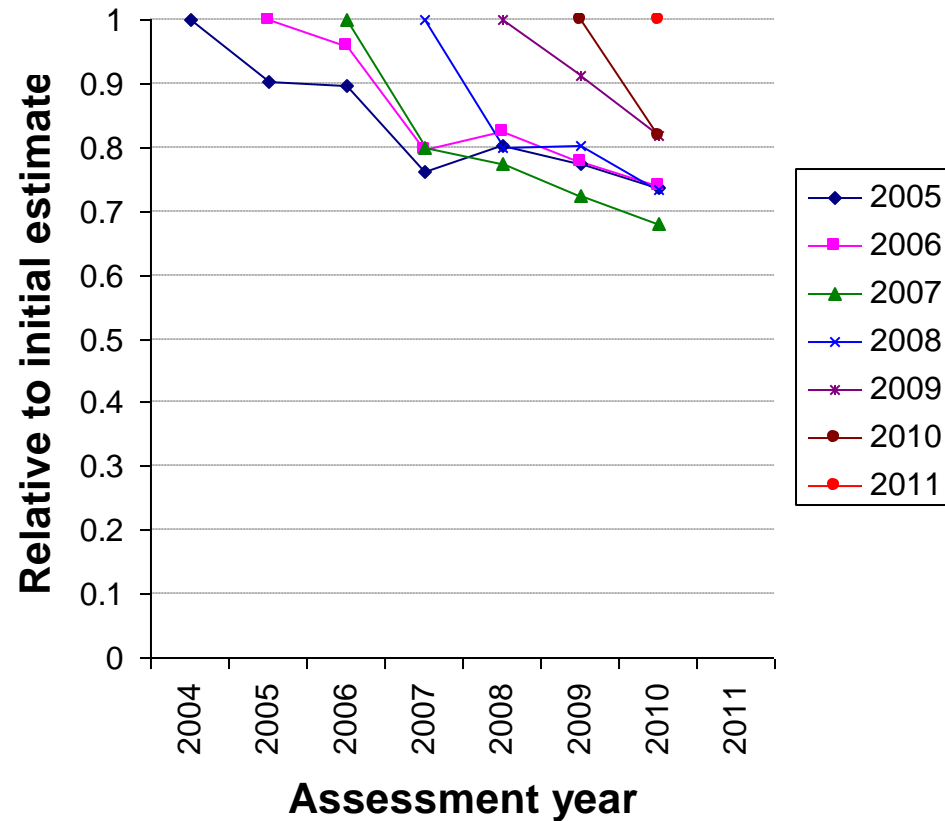


Retrospective pattern, SBio and target HR



Factoring retrospective pattern in target HR

Approach 1: Decrease target HR by consistent revisions of past EBio estimates

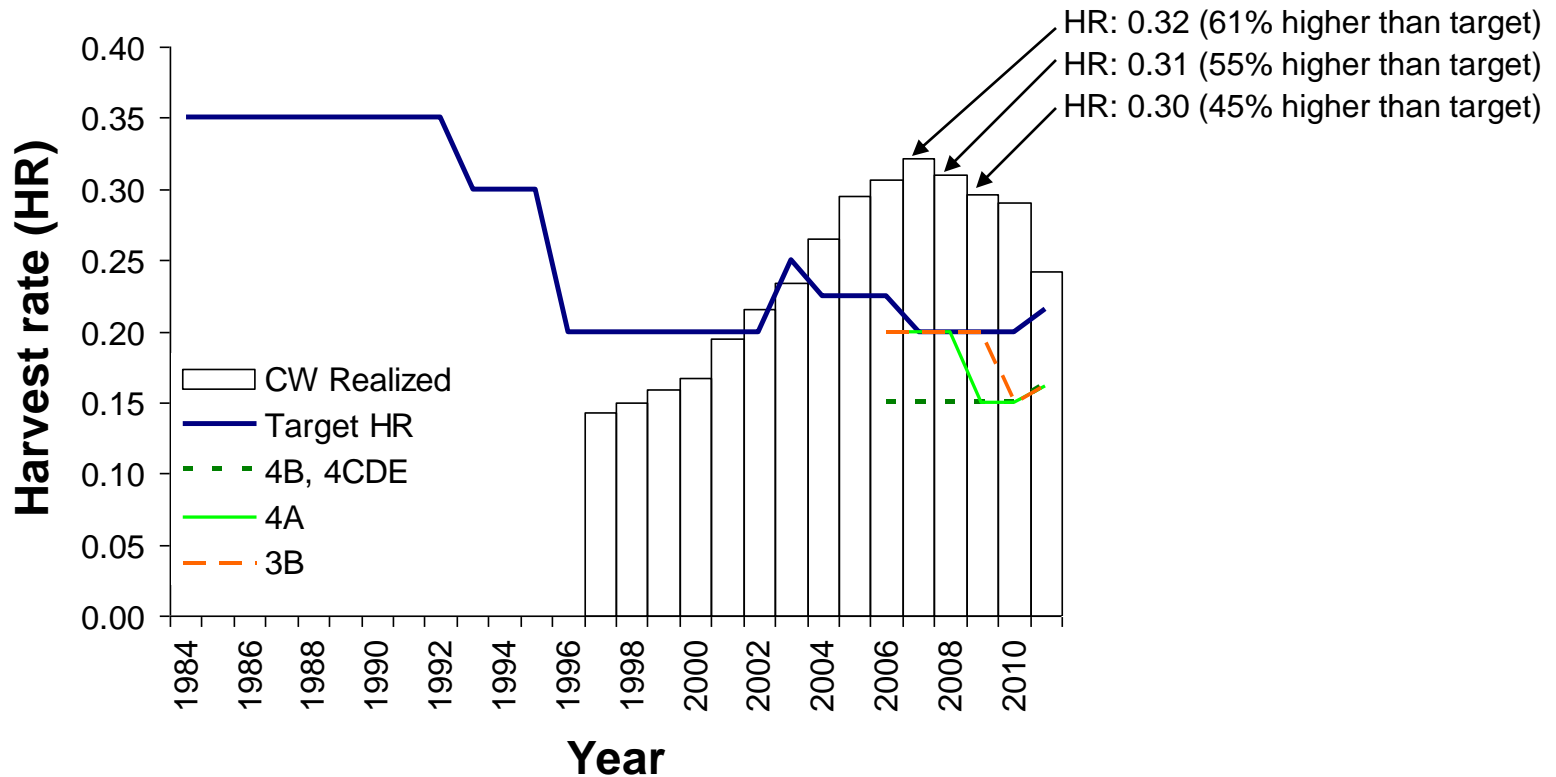


Using of -30% revision up to 2010 SA
 Target HR: 0.215 revised down to 0.15
 Target HR: 0.161 revised down to 0.11

Using of -39% revision up to 2011 SA
 Target HR: 0.215 revised down to 0.131
 Target HR: 0.161 revised down to 0.098

Factoring retrospective pattern in target HR

Approach 2: Decrease target HR as a function of consistent downwards revision



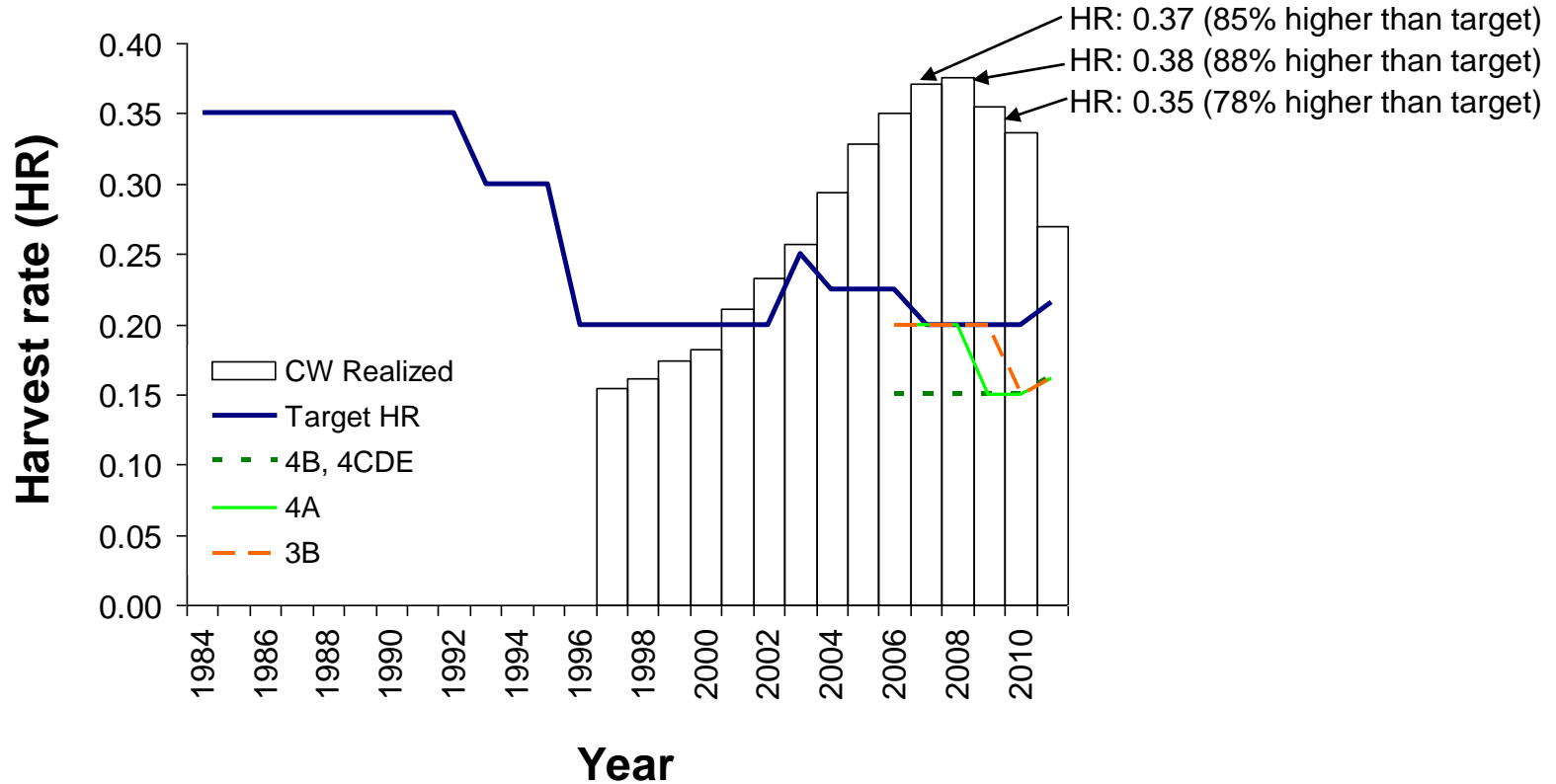
Using of +61% departure from target

Target HR: 0.215 revised down to 0.134

Target HR: 0.161 revised down to 0.10

Factoring retrospective pattern in target HR

Approach 2: Decrease target HR as a function of consistent downwards revision



Using of +88% departure from target
 Target HR: 0.215 revised down to 0.114
 Target HR: 0.161 revised down to 0.086

Decision table and biomass projections

Retrospective hypothesis	Management action			
	Adjusted target HR (AHR)		Current target HR (CHR)	
	Short term	Long term	Short term	Long term
Overestimation continues	smaller yield	smaller yield	larger yield	conservation risk higher than target HR
No retrospective issue	smaller yield	smaller yield return to Status quo HR	larger yield	larger yield
Underestimation starts	smaller yield	larger yield return to Status quo HR	larger yield	larger yield lower than target HR

