



NOAA
FISHERIES

Red Grouper Interim Analysis Update to the SSC

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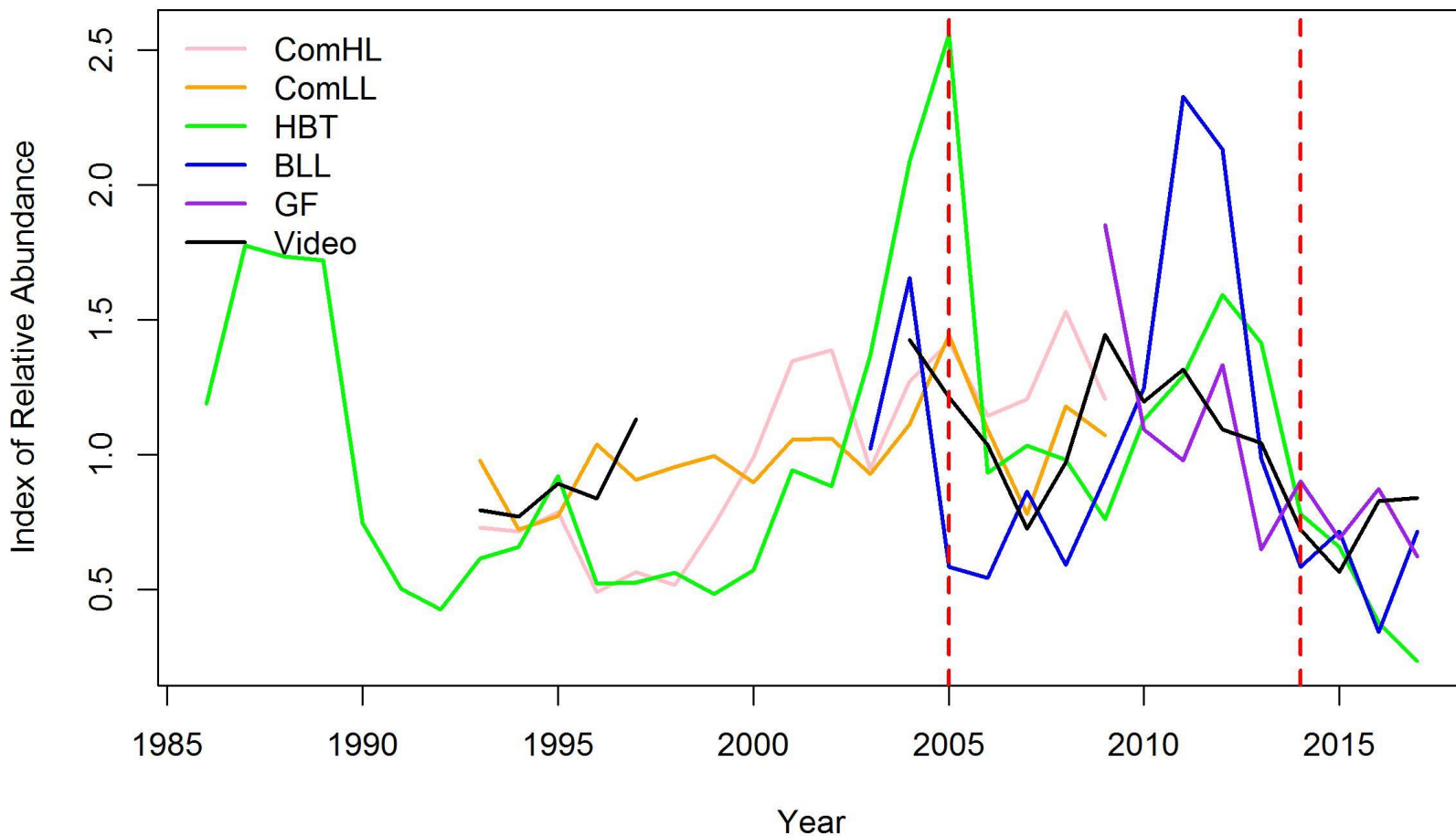


Outline

- Review why this analysis is being conducted.
- Detail methodology.
- Review 2019 recommendations.
- Discuss next steps.

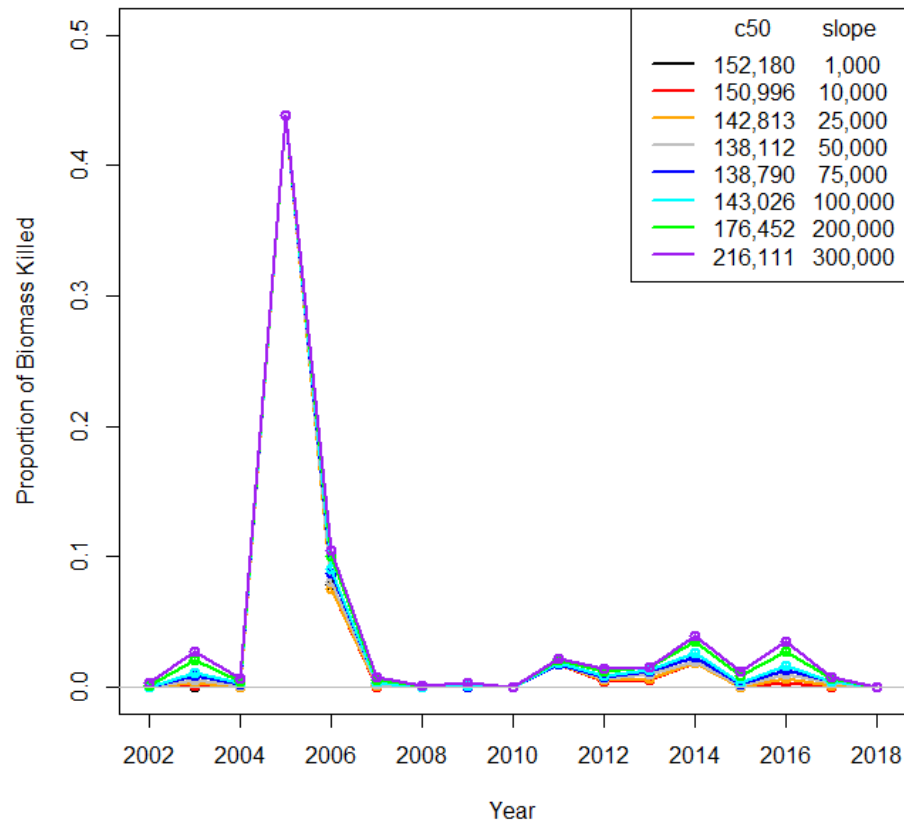
Why are we here?

Red tide events

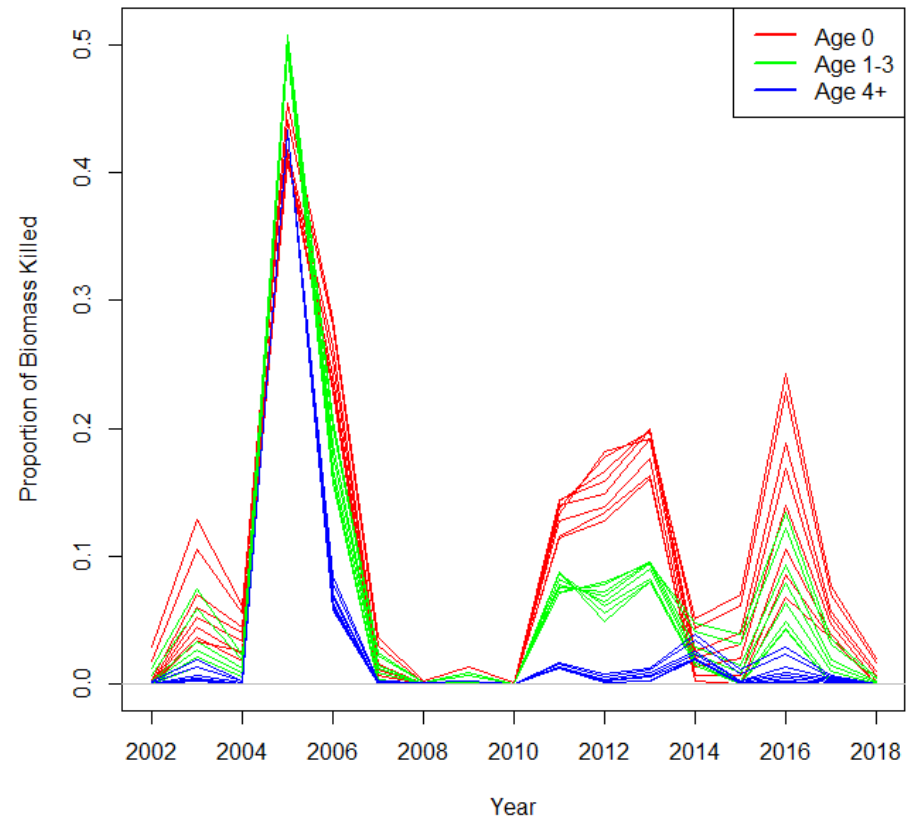


Why are we here?

Red Grouper Mrt on Total Biomass



Red Grouper Mrt by Age Stanza



Why are we here?

- Perception among most stakeholders that stock is struggling.

	Recreational				Commercial			
Year	Landings	ACL	%ACL	%ACL No Increase	Landings	ACL	%ACL	%ACL No Increase
2012	1,752,930	1,900,000	92%	92%	5,219,133	6,030,000	87%	87%
2013	2,377,111	1,900,000	125%	125%	4,599,001	6,030,000	76%	76%
2014	1,600,475	1,900,000	84%	84%	5,601,905	6,030,000	93%	93%
2015	1,847,573	1,900,000	97%	97%	4,798,007	6,030,000	80%	80%
2016	1,403,236	2,580,000	54%	74%	4,497,582	8,190,000	55%	75%
2017	832,315	2,580,000	32%	44%	3,374,183	8,190,000	41%	56%
2018			8%				24%	

The Council is asking for advice for 2019

Interim Assessment

- Designed to occur between regular stock assessments to provide opportunity to adjust harvest recommendations based on current stock conditions.
- The “autopilot” of the stock assessment world

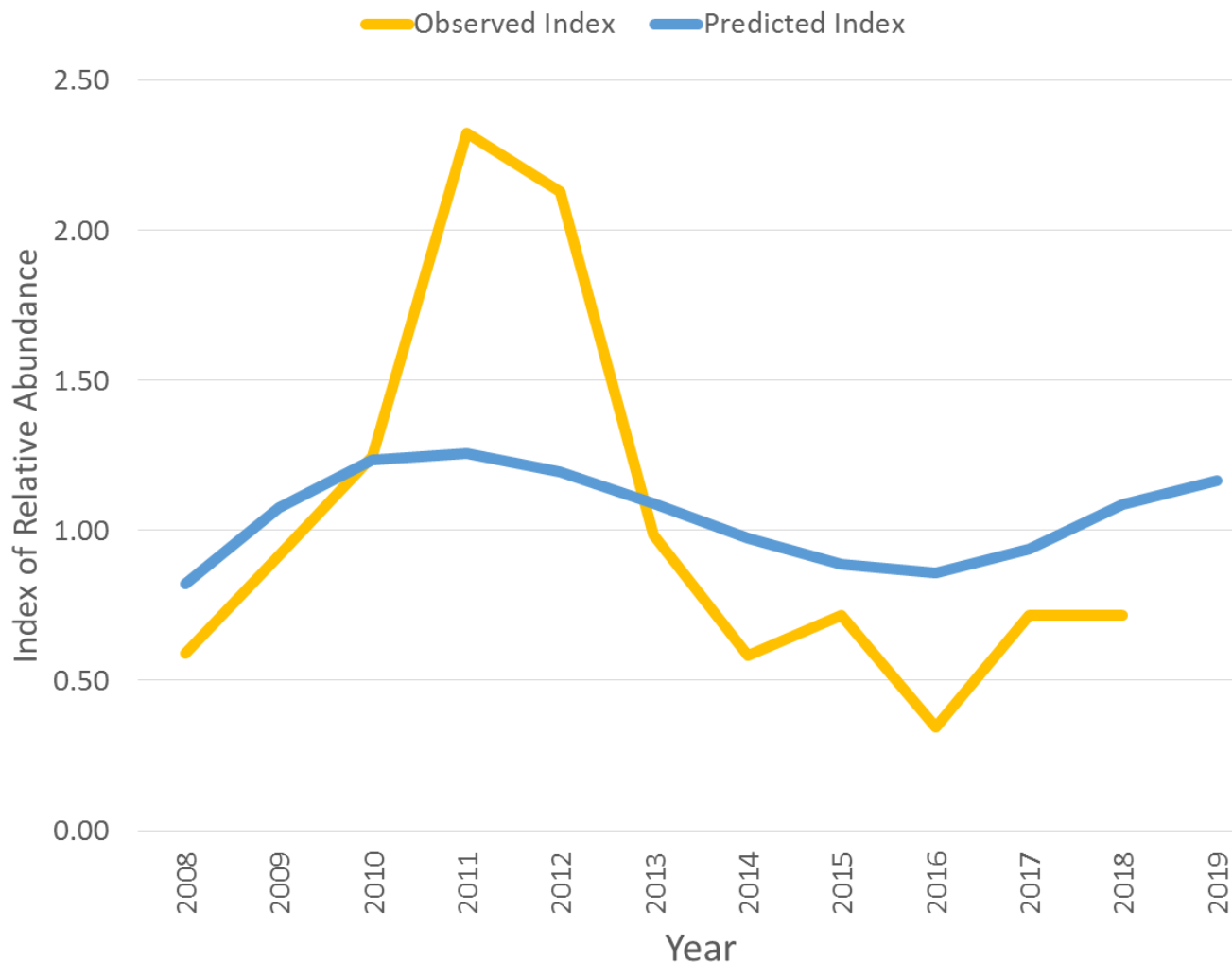
Interim Assessment

- Stock assessments represent best scientific information available so why deviate from forecasted landings?
- Unpredictable events
 - Recruitment event/failure
 - Environmental disasters (e.g., Hurricane, Red tide)
 - Man-made disasters (e.g., Deepwater Horizon)

Interim Assessment

- Use an index to compare where we are now to where we want to be.
- Where we are now = observed index value
- Where we want to be = forecast index value

Interim Assessment



Observed = NMFS BLL.

Predicted from SEDAR 42 forecast through 2019 with fixed landings for 2014-2018.

2018 Obs. index = 2017



Interim Assessment

- Develop and apply harvest control rule (HCR).
- Many possible HCR's exist.
- Long-term, MSE will be used to select HCR/index pair that best achieves management goals.
- Short-term, developed one HCR and applied it to NMFS-BLL index.

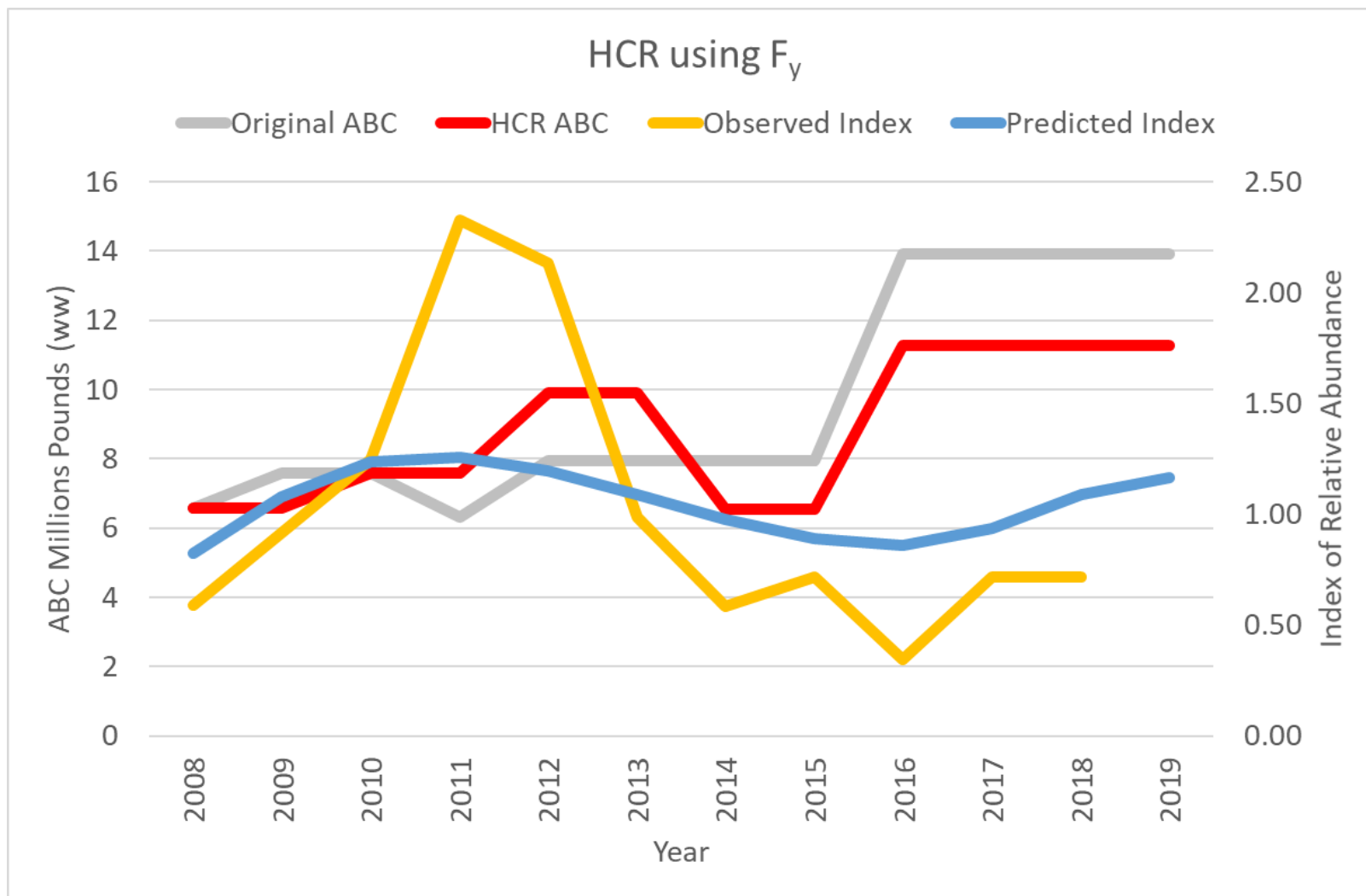
Harvest Control Rule

- $ABC_y = ABC_{assess} \left(\frac{O_y + \beta}{F_y + \beta} \right)$
- Where ABC_{assess} = ABC from most recent assessment
 - O_y = observed index value in year y,
 - F_y = Forecast index value in year y,
 - β = Scalar to adjust responsiveness of HCR

Harvest Control Rule

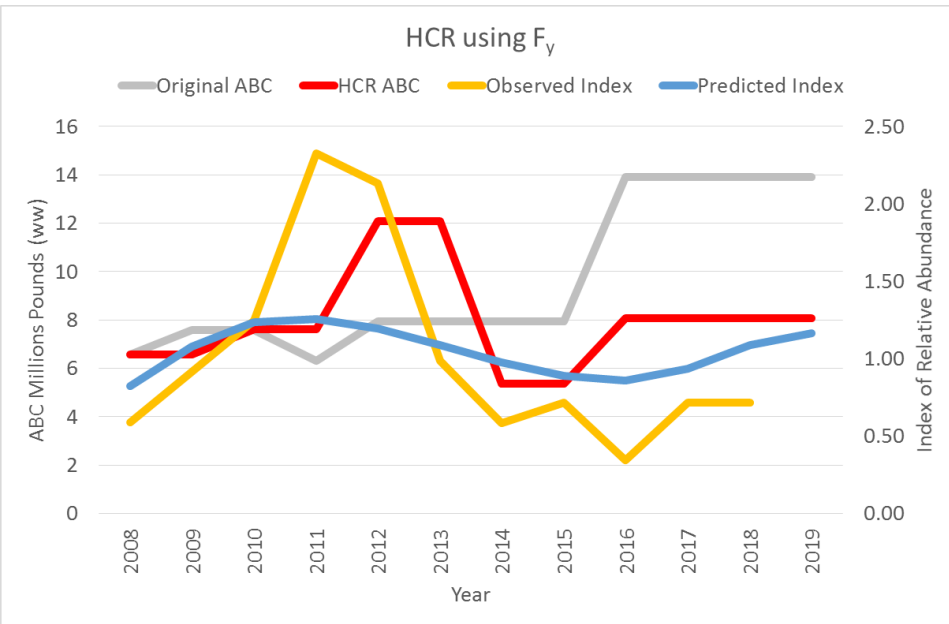
- Changes to ABC only implemented every other year
- ABC advice for 2018 and 2019 set equal to 2017

Harvest Control Rule

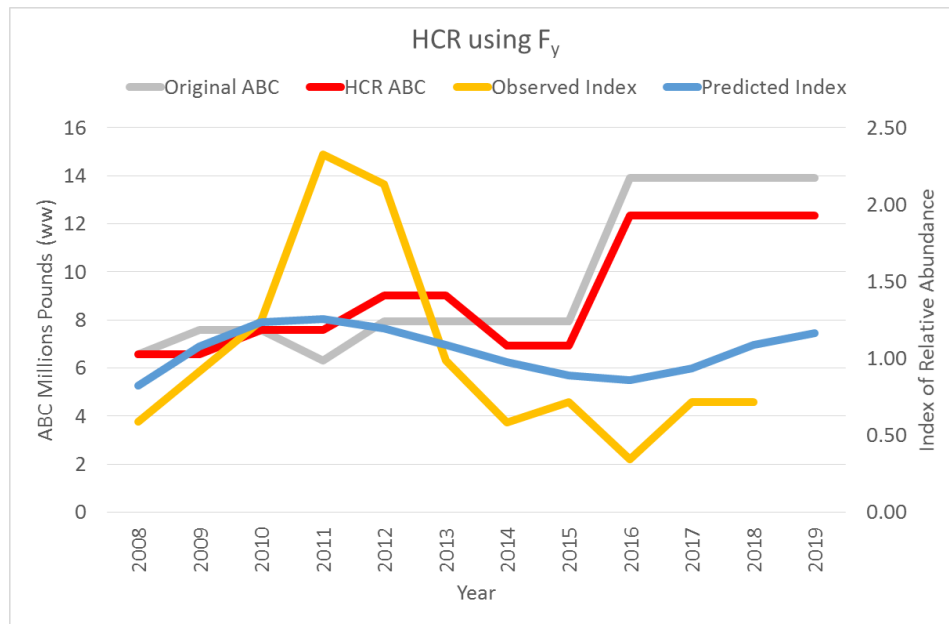


Effect of β

$\beta=1$



$\beta=10$

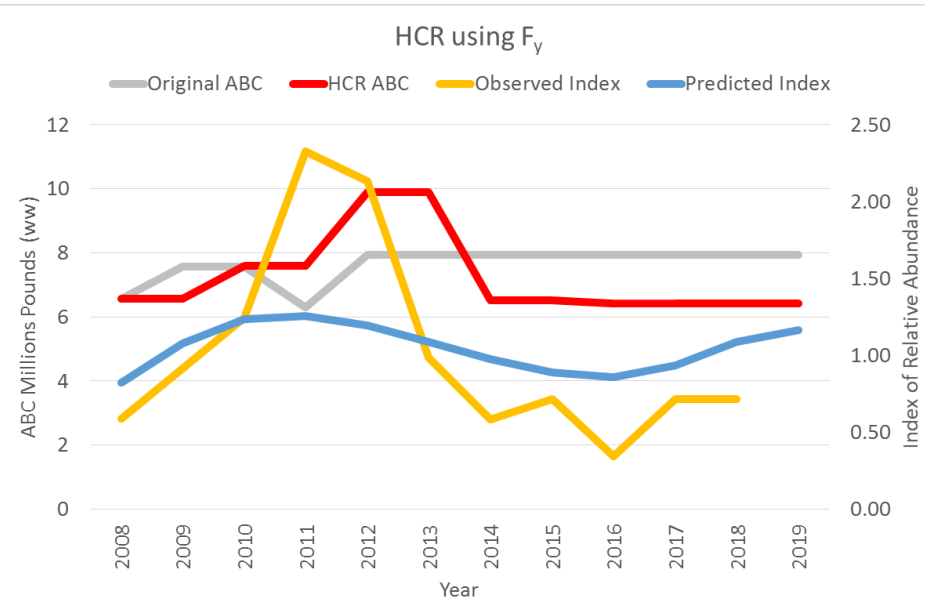
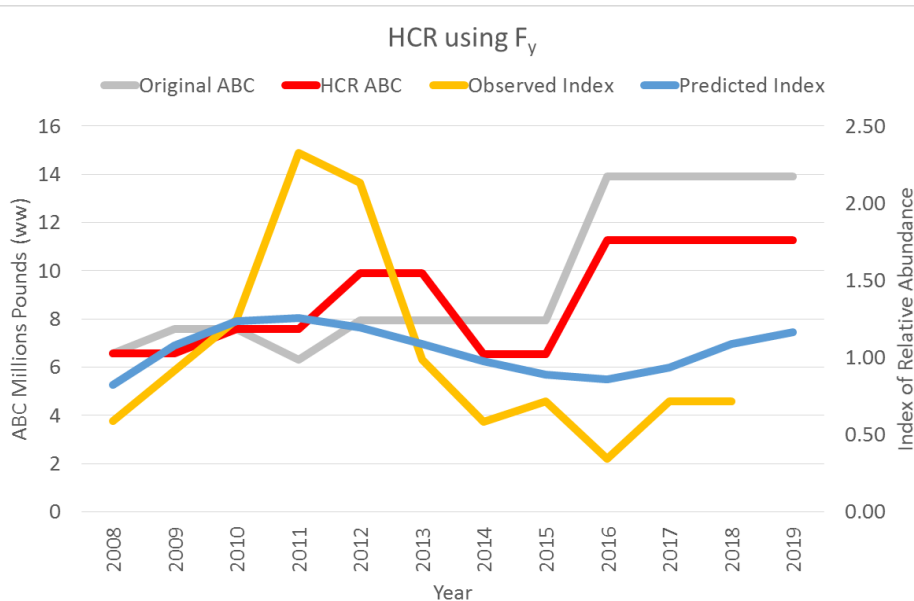


Low β tracks index more closely, high β tracks ABC recommendation from assessment.

Effect of SEDAR 42

With SEDAR 42, $\beta=5$

Without SEDAR 42, $\beta=5$



SEDAR 42 result suggesting large increase in sustainable harvest rate may not hold after SEDAR 61.

Recommendations for 2019 ABC

Beta	2019 ABC with S42	2019 ABC no S42	Avg. % Change	Max % Change
1	8.08	4.60	34%	52%
3	10.28	5.85	23%	34%
5	11.27	6.42	18%	25%
7	11.84	6.75	15%	20%
9	12.21	6.96	13%	20%

ABC values shown in millions of pounds whole weight

Year	Retained Biomass
2015	7.43 million pounds (ww)
2016	6.72 million pounds (ww)
2017	4.72 million pounds (ww)

Retained biomass estimates based on preliminary non-FES adjusted recreational landings.

Next Steps

- Finish MSE development.
- Design multitude of HCR's with stakeholder input.
- Test HCR/Index combinations to identify optimum HCR.
- Begin rolling out fully operational interim assessments by late 2019 early 2020.

Discussion

- Can SSC recommend use of this approach for setting 2019 catch levels?
- If yes, should the SEDAR 42 result be included or not?
- What level of β is preferred?

β	2019 ABC with S42	2019 ABC no S42
1	8.08	4.60
3	10.28	5.85
5	11.27	6.42
7	11.84	6.75
9	12.21	6.96