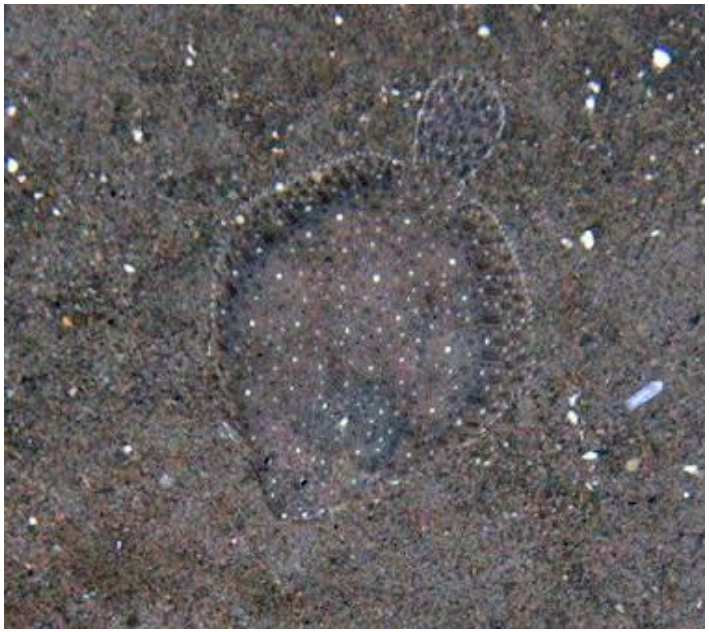
Northern Windowpane Flounder



Background

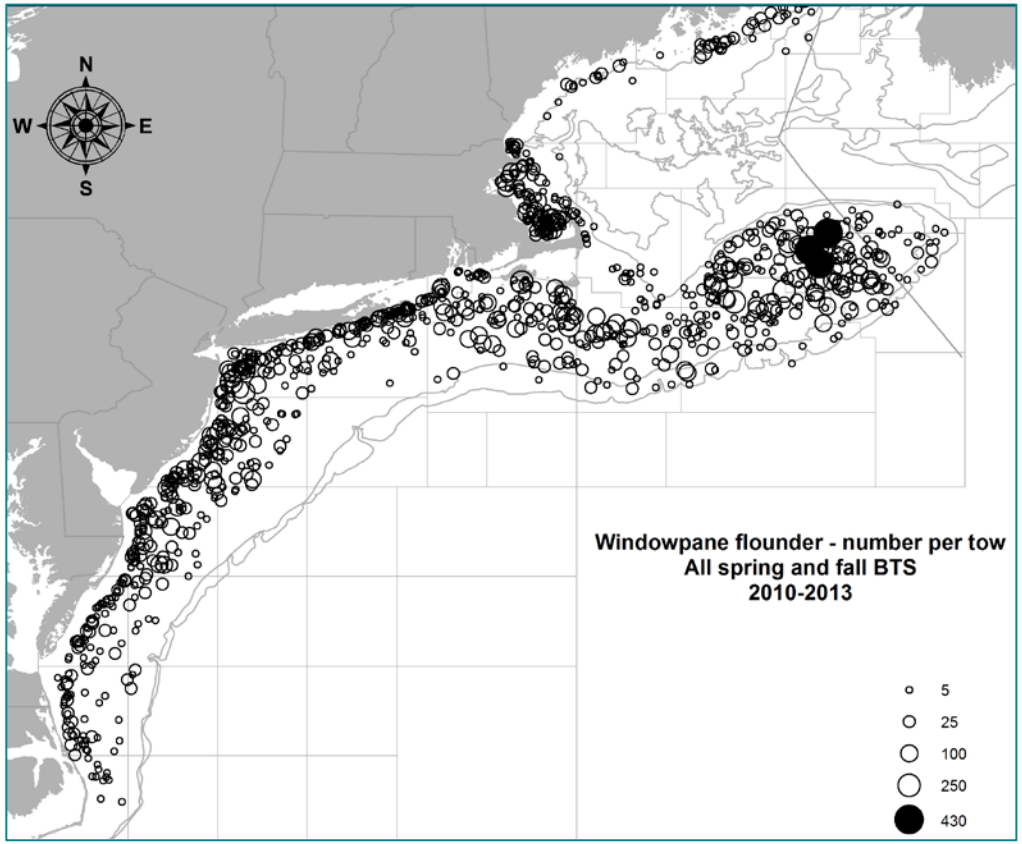
Mud or sand substrate

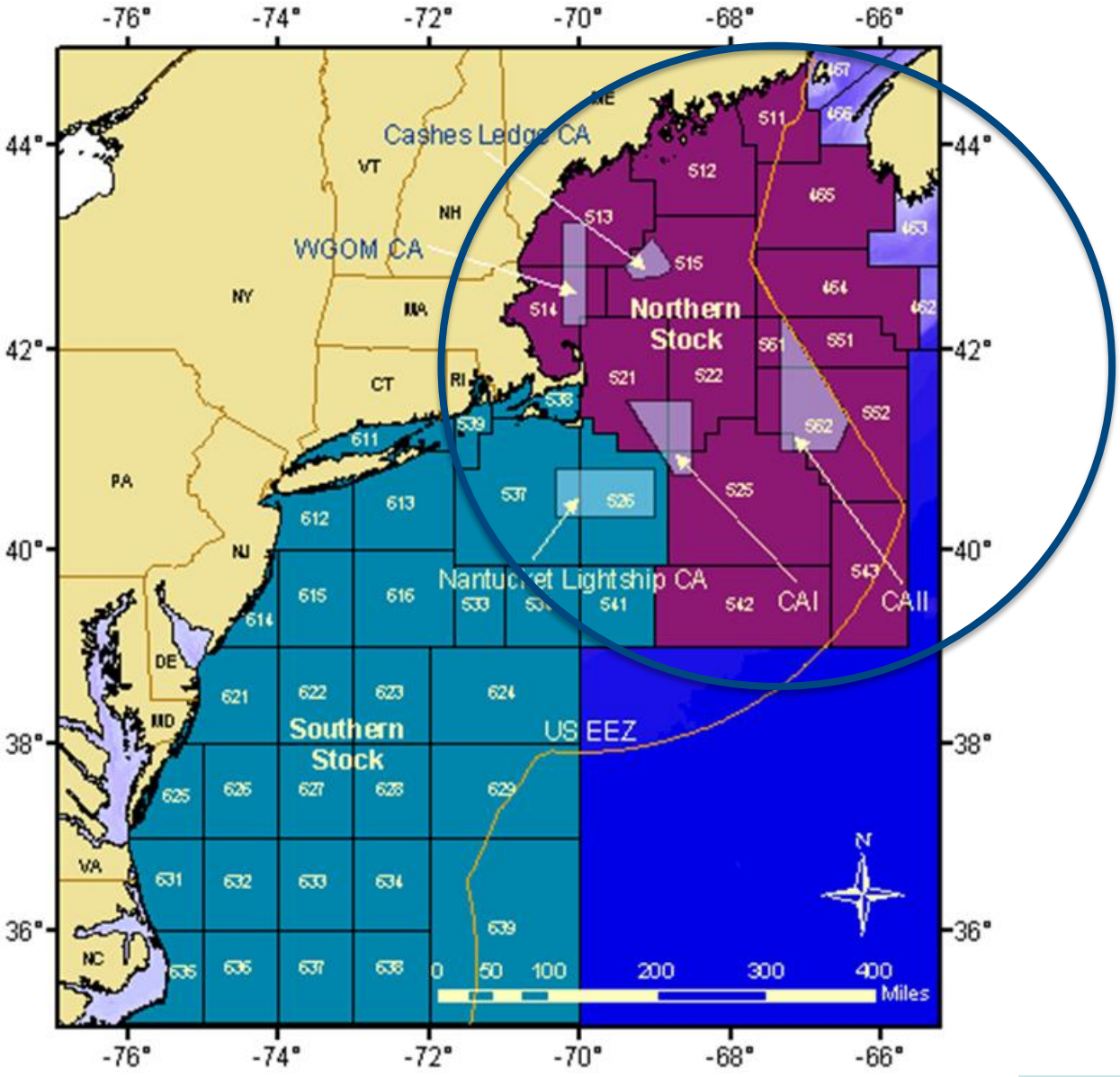
Not many over 30 cm

Small prey –
crustaceans and other fish

Minimal age data, none so far older than 8y

Southern windowpane can be found in estuaries

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WGOM CA
Nantucket Lightship CA
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Northern Stock
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Miles

Previous assessment for northern windowpane: NE Groundfish 2012 update

AIM – an index-based model

AIM model input:

- **NEFSC fall bottom trawl survey index** (kg/tow)
- **Catch** (landings plus estimated discards, kt)
- Time series **1975 - 2010**

AIM model output:

- **Replacement ratio** (year *t* survey index / mean survey index for previous 5 years)

- **Relative F** (year *t* catch / mean survey index years *t* through *t* – 2)

- **F_{msy} proxy estimate** (rel. F when rep. ratio = 1)

AIM - determining reference points:

MSY proxy = median annual catch 1995 – 2001

B_{msy} proxy = MSY proxy / F_{msy} proxy

$B_{threshold}$ = ½ B_{msy} proxy

Biomass index: 3-year moving average of the survey index in kg/tow

*Reference points (except MSY proxy) re-estimated when additional years of input data are added

AIM - determining model fit:

- Test for significance of correlation between ln(relative F) and ln(replacement ratio)
- Look for trends in regression residuals

Northern windowpane stock status for 2010:

2010 Biomass index 2010 = 0.46, $B_{threshold}$ = 0.80

overfished

2010 relative F = 0.51, Fmsy = 0.44

overfishing

(stock supposed to be rebuilt by 2017 – GARM 2008)

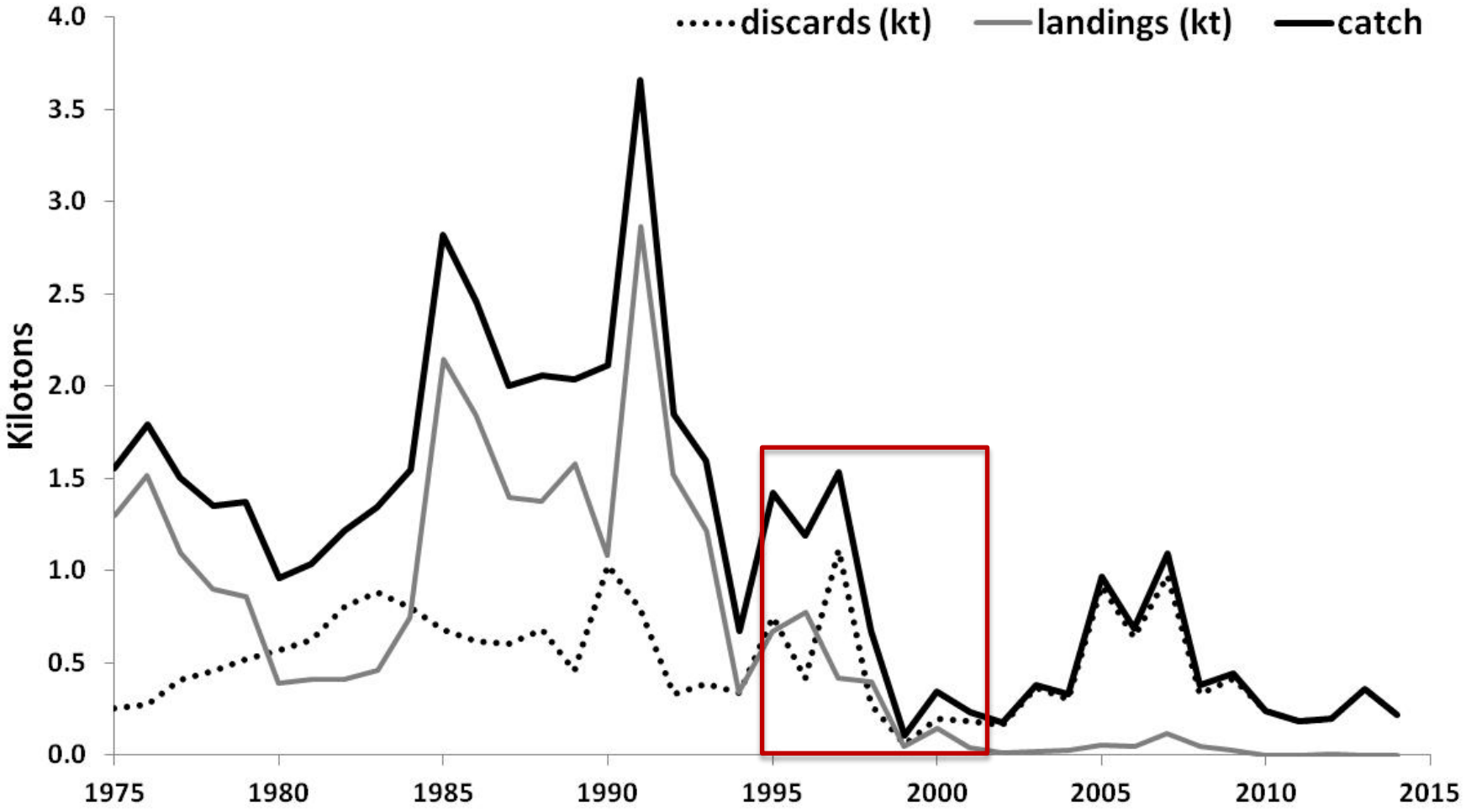
Northern windowpane 2015 assessment update

- All methods the same

- Time series **1975 – 2014**, four new years of input data

- Change from **SHG** to **TOGA** criteria for survey tow quality -- biomass index for 2014 changed +0.0067 kg/tow as a result

AIM input: Northern windowpane catch



No possession regulation since fishing year 2010

Northern windowpane discards estimated from:

Large mesh bottom trawl

2014 = 54%

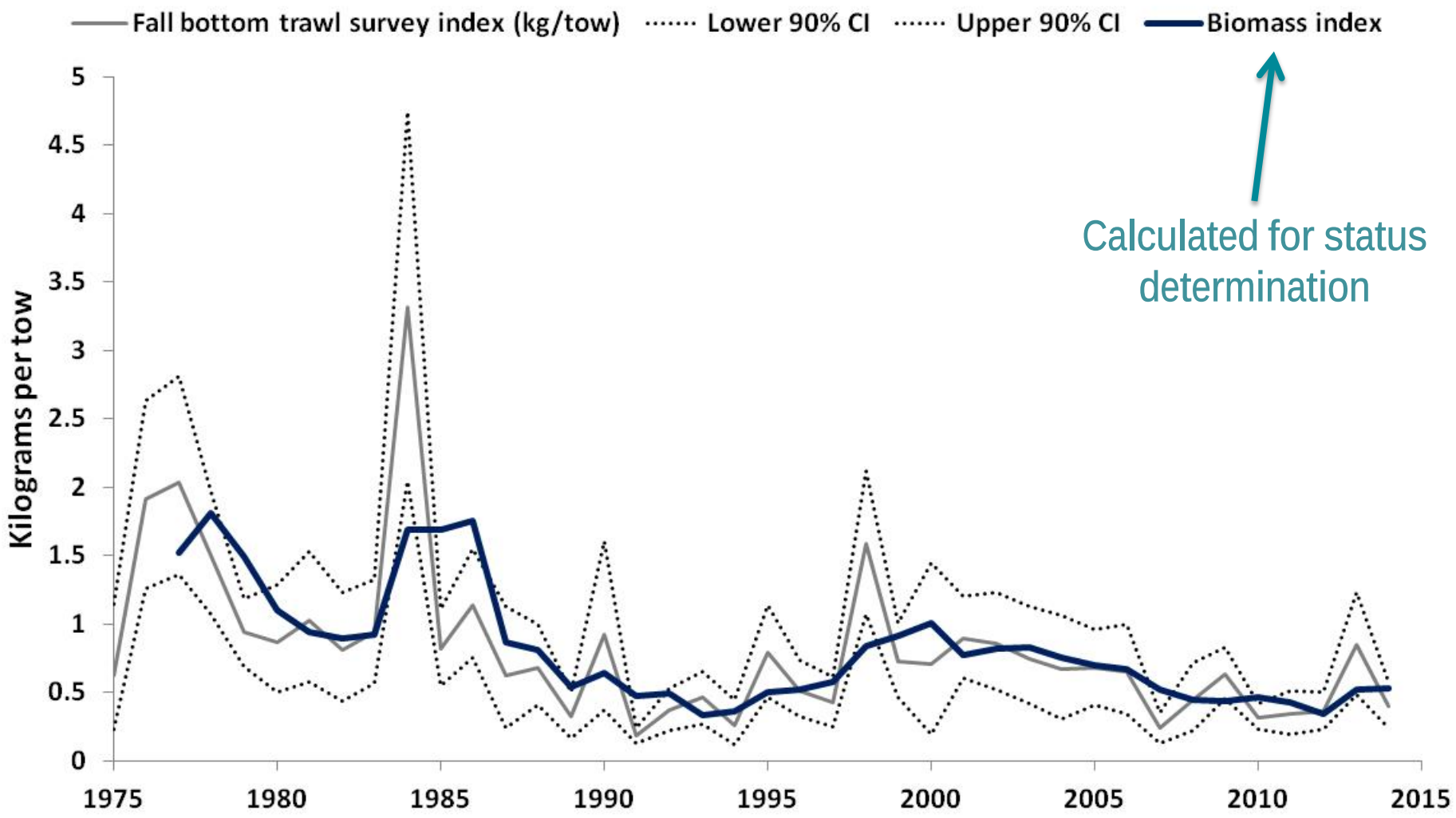
Small mesh bottom trawl

2014 = 1.3%

Limited access scallop dredge

2014 = 44%

AIM input: N. windowpane fall BT survey index



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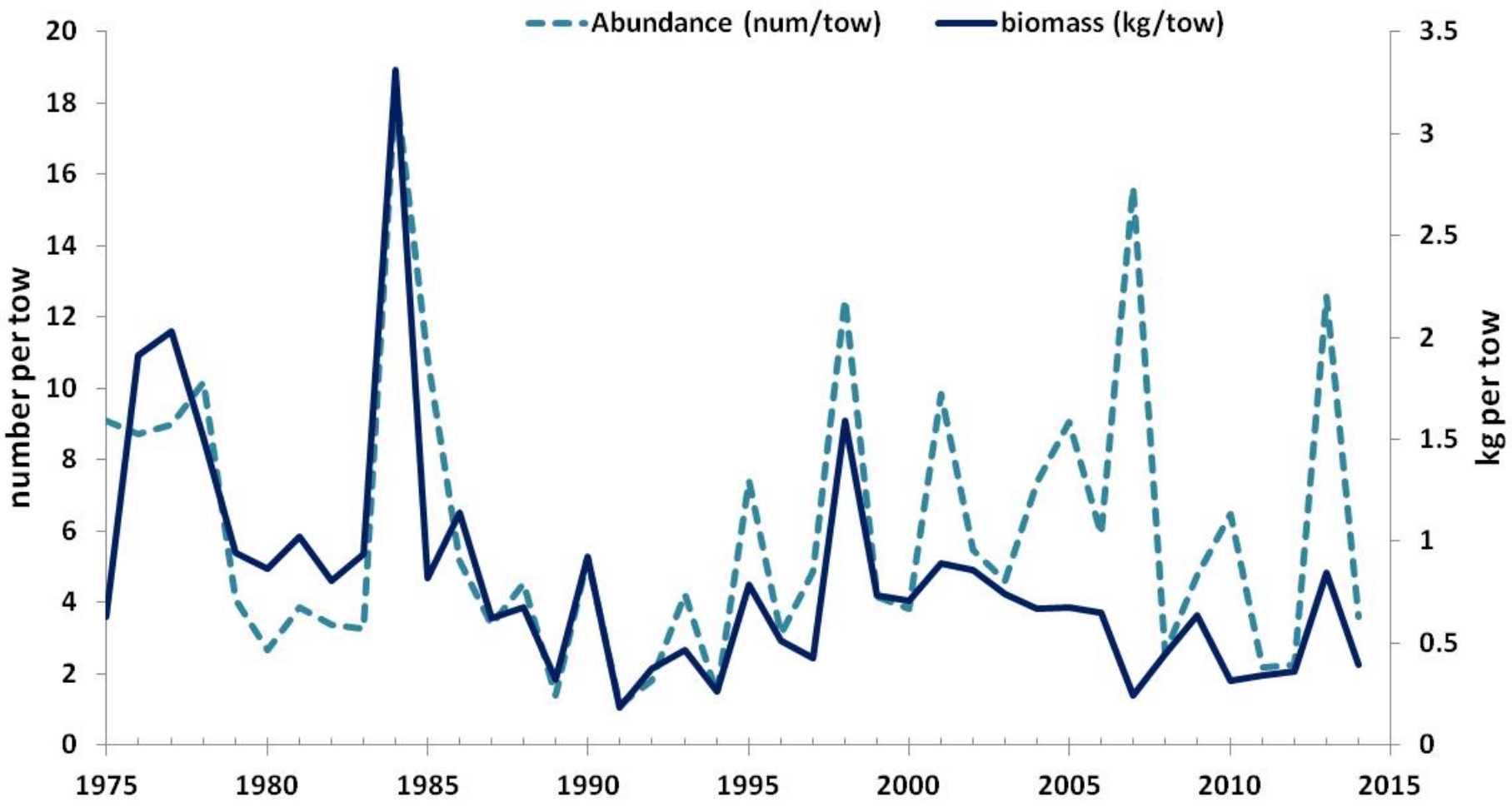
(Albatross units, conversion factor: Bigelow/1.901)

Northern windowpane fall BTS abundance and biomass



CVs for model input – northern windowpane

Discard estimates:

(discard-windowpane/discard-all ratio)

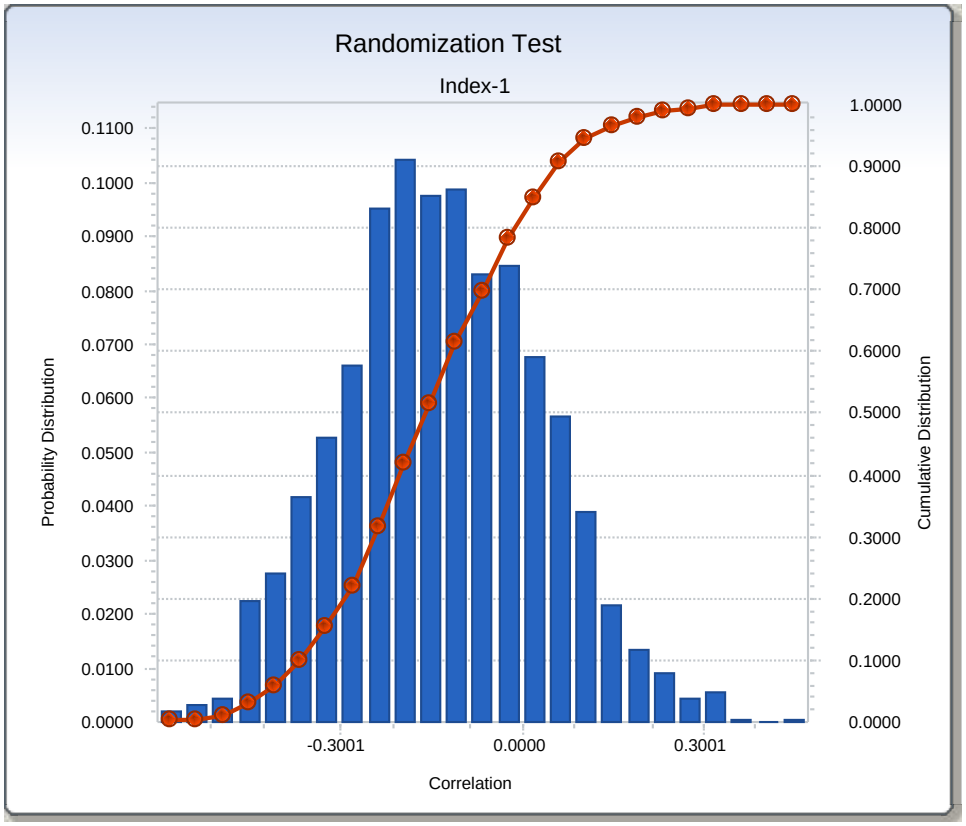
1975 – 1988 values hindcast using ratio

1989 - 2014 mean CV of **0.274**

Survey indices:

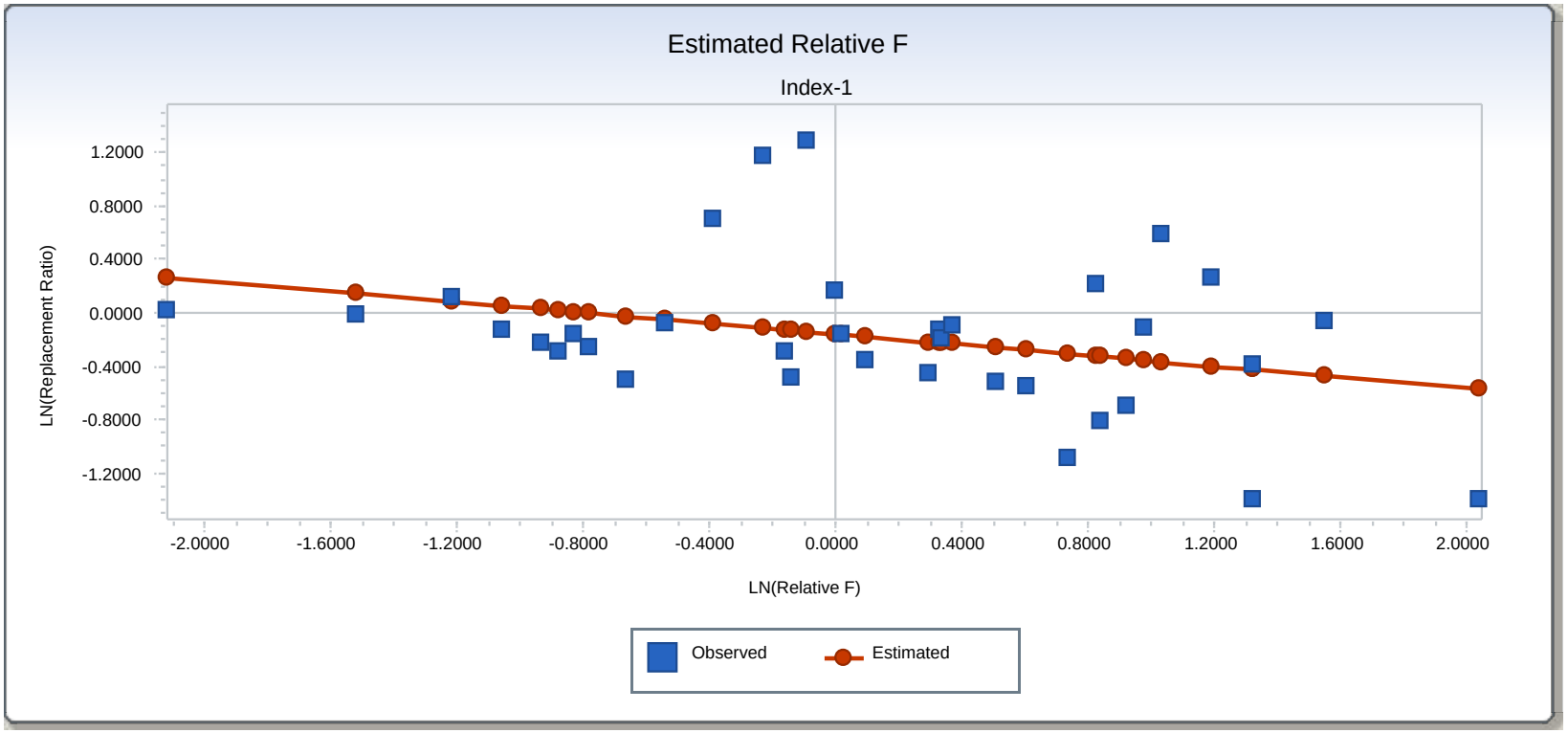
1975 – 2014 mean CV of **0.274**

Northern windowpane AIM model output



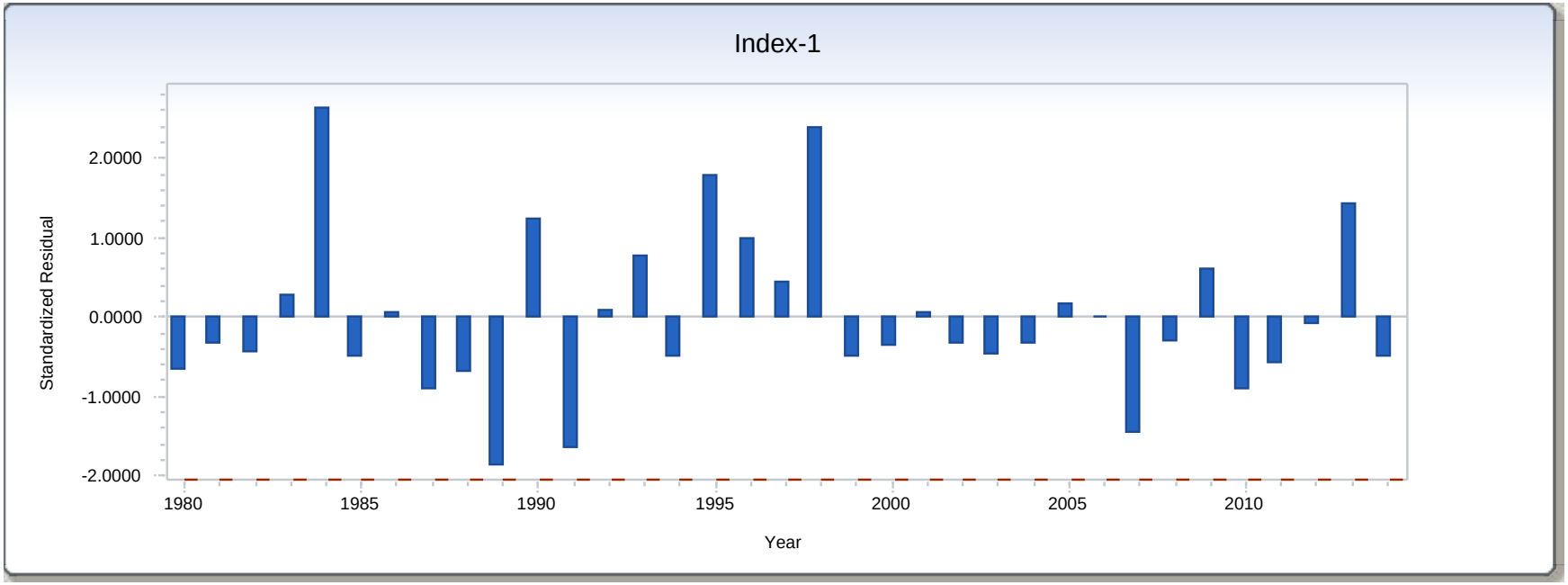
Randomization test: Correlation between ln(replacement ratio) and ln(relative F) --- *p* = 0.079 (0.090 in 2010), critical value = -0.333

Northern windowpane AIM model output



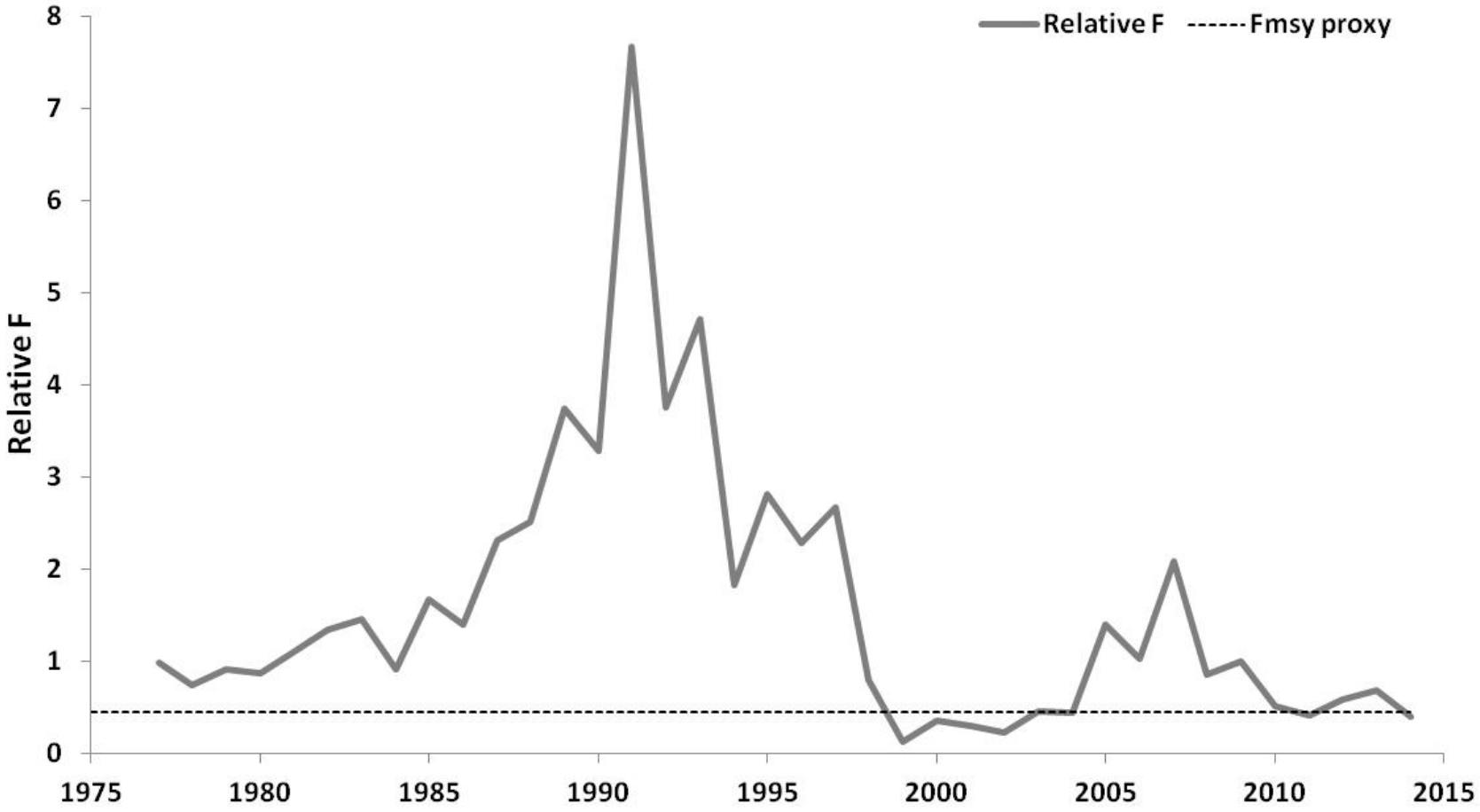
F_{msy} proxy occurs where the regression line crosses zero (replacement ratio is 1.0)

Northern windowpane AIM model output

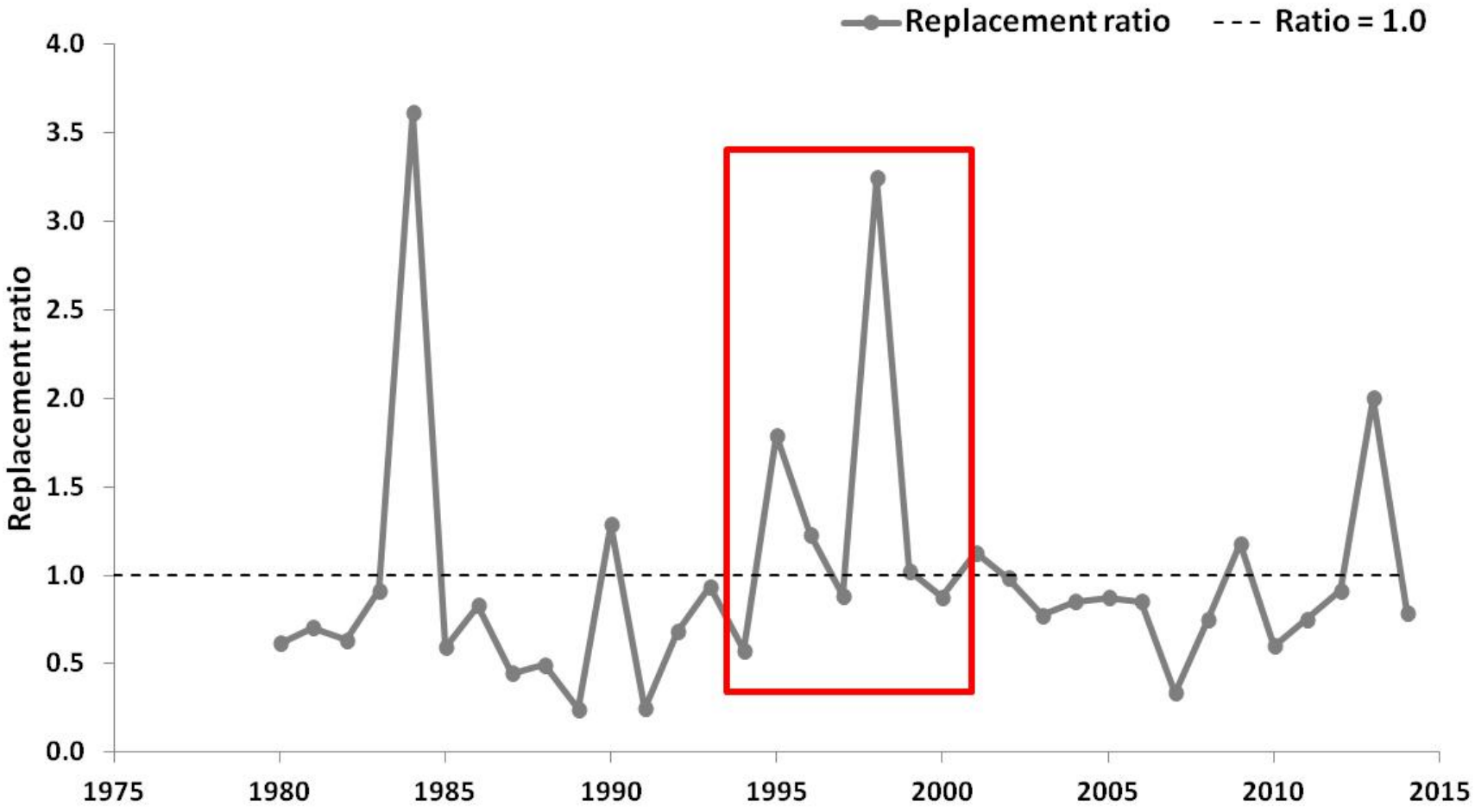


Standardized residuals by year - regression of ln(relative F) and ln(replacement ratio)

Northern windowpane AIM model output -- F_{msy} proxy estimate and relative F



Northern windowpane AIM model output – replacement ratio



(Median catch from 1995 – 2001 is MSY proxy)

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Northern windowpane previous and re-estimated reference points

	2010	2014	units
MSY proxy	0.700	0.700	kt
F_{msy} proxy	0.44	0.450	kt per kg/tow
B_{msy} proxy	1.60	1.554	kg/tow
$B_{threshold}$	0.80	0.777	kg/tow

Northern windowpane stock status for 2014

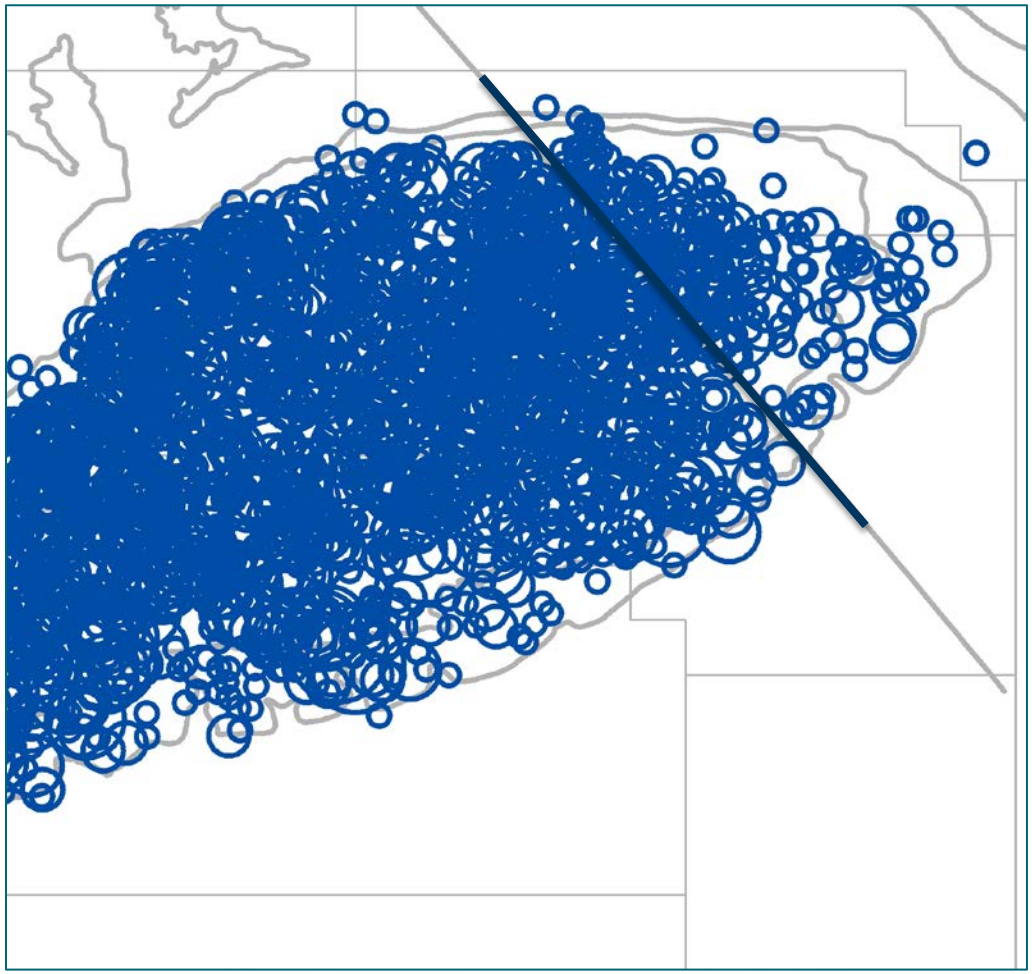
2014 biomass index = 0.535, $B_{threshold}$ = 0.777

overfished

2014 relative F = 0.392, Fmsy = 0.450

overfishing not occurring

Uncertainty



Bottom trawl survey 1980-2013 windowpane catches over the Hague line….Canadian discards should probably be estimated.