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NOAA FISHERIES
NATIONAL MARINE FISHERIES SERVICE

Transboundary Resources Assessment Committee

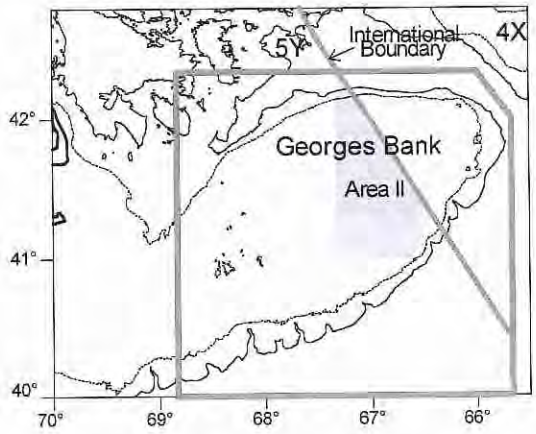
Status Report 2012/01

GEORGES BANK

YELLOWTAIL

FLOUNDER

[5Zhjmn; 522,525,551,552,561,562]



Summary

- Combined Canada and USA catches in 2011 were 1,169 mt.
- The Split Series VPA, which splits the survey indices between 1994 and 1995, was used as the basis for status determination reflected in the bullets below, but a range of sensitivity analyses were considered when providing catch advice.
- Adult population biomass (age 3+) increased from a low of 2,100 mt in 1995 to 10,900 mt in 2003, declined to about 2,500 mt in 2006 and 2007, increased to 4,500 mt in 2011, and was 4,300 mt at the beginning of 2012. Spawning stock biomass in 2011 was estimated to be 4,600 mt.
- During 1973-2011, recruitment averaged 19.5 million fish at age 1; however, it has been below this average since 2002. The 2009 and 2010 year classes are estimated at 3.1 million and 3.0 million, respectively, the lowest values in the time series.
- Fishing mortality for fully recruited ages 4+ was close to or above 1.0 between 1973 and 1995, fluctuated between 0.51 and 0.97 during 1996-2003, increased in 2004 to 1.94, and then declined to 0.31 in 2011. The fishing mortality rate has been above the reference point of $F_{ref} = 0.25$ for the entire assessment time series.
- If the retrospective pattern observed in this assessment continues, the 2011 fishing mortality rate estimate is expected to increase from 0.31 to 0.62, while the 2011 spawning stock biomass estimate is expected to decrease from 4,600 mt to 1,700 mt in future assessments.

- Given the increased magnitude of the retrospective bias in the Split Series VPA, five sensitivity analyses were performed to address the retrospective bias in characterizing the uncertainty and risk in the catch advice.

- To achieve both a high probability that F in 2013 will be less than F_{ref} and that adult biomass will increase, a 2013 quota of approximately 200 mt would be required. A quota of 400-500 mt implies that either F will be below F_{ref} in 2013 in only one of the five sensitivity analyses or the adult biomass will increase from 2013 to 2014 for the other four. Thus, a 2013 quota of 400-500 mt has both positive and negative aspects.

Catches and Biomass (thousands mt); Recruits (millions)

		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Avg[1]	Min[1]	Max[1]
Canada[9]	Quota	2.3	1.9	1.7	0.9	0.4	0.6	0.5	0.8[8]	1.2	0.6			
	Landed	2.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		0.5	<0.1	2.9
	Discard	0.8	0.4	0.2	0.5	0.1	0.1	0.1	0.2	<0.1		0.5	0.1	0.8
USA[9]	Quota[2]		6.0	4.3	2.1	0.9	1.9	1.6	1.2[8]	1.5	0.6			
	Catch[2]		5.9	3.8	1.9	1.0	1.6	1.8	1.1	1.1				
	Landed	3.2	5.8	3.2	1.2	1.1	0.7	1.0	0.7	0.9		4.4	0.4	15.9
	Discard	0.4	0.5	0.4	0.4	0.5	0.4	0.7	0.3	0.2		0.6	<0.1	3.0
Total[9]	Quota[3]		7.9	6.0	3.0	1.3	2.5	2.1	2.0[8]	2.7	1.2			
	Catch[3,4]		6.4	4.1	2.5	1.1	1.7	1.9	1.3	1.1				
	Catch	6.6	6.8	3.9	2.1	1.7	1.3	1.8	1.2	1.2		6.0	1.1	17.2
Adult Biomass[5]		10.9	8.5	4.0	2.5	2.5	3.4	3.9	4.2	4.5	4.3	6.9[6]	2.0[6]	26.2[6]
SSB		10.0	5.4	3.2	2.4	2.9	3.7	4.2	4.4	4.6		6.8	2.2	22.2
Age 1 Recruits		10.6	6.9	8.8	10.8	7.4	8.2	6.9	3.1	3.0		19.5	3.0	70.6
Fishing mortality[7]		0.61	1.94	1.39	1.52	1.00	0.51	0.67	0.49	0.31		1.02	0.31	1.94
Exploitation Rate[7]		42%	80%	70%	73%	58%	37%	45%	35%	24%		59%	24%	80%

[1]1973 – 2011
[2]for fishing year May 1 – April 30
[3]for Canadian calendar year and USA fishing year May 1 – April 30
[4]sum of Canadian Landed, Canadian Discard, and USA Catch (includes discards)
[5]January 1st ages 3+
[6]1973 – 2012
[7]ages 4+ for calendar year
[8]quotas not jointly determined; established individually by each country
[9] unless otherwise noted, all values reported are for calendar year

Fishery

Total catches of Georges Bank yellowtail flounder peaked at about 21,000 mt in both 1969 and 1970 (Figure 1). The combined Canada/USA catch increased from 1995 through 2001, averaged 6,300 mt during 2002-2004, but declined to 1,169 mt in 2011 due to restrictive management measures.

The 2011 **Canadian catch** of 72 mt was well below the Canadian quota of 1,192 mt, with landings of only 22 mt and estimated discards of 50 mt. The majority of landings were incidental to cod and haddock fishing. Discards were due to the sea scallop dredge fishery.

USA catches in 2011 were 1,096 mt, with landings of 904 mt and discards of 192 mt. The USA landings in 2011 were predominantly from the trawl fishery while discards came from both the

trawl and sea scallop dredge fisheries. Preliminary estimates of the USA catches for fishing year 2011-2012 were 86% of the 1,458 mt quota.

Ages 3-5 accounted for most of the **combined Canada/USA fishery** catch in 2011. Both the Canadian and the USA fisheries were well sampled to determine length composition of the catch.

Harvest Strategy and Reference Points

The Transboundary Management Guidance Committee has adopted a strategy to maintain a low to neutral risk of exceeding the fishing mortality limit reference, $F_{ref} = 0.25$ (established during the 2005 TRAC benchmark). When stock conditions are poor, fishing mortality rates should be further reduced to promote rebuilding.

State of Resource

Evaluation of the state of the resource was based on results from an age structured analytical assessment (Virtual Population Analysis, VPA) that used fishery catch statistics and sampling for size and age composition of the catch for 1973 to 2011. The VPA was calibrated to trends in abundance from three bottom trawl survey series (NMFS spring, NMFS fall, and DFO) and a recruitment index from the NMFS summer sea scallop survey. The VPA formulation down-weights the DFO surveys in 2008 and 2009 to account for the higher uncertainty in these years due to large tows, as previously recommended by TRAC. This formulation is denoted Split Series and is most similar to the Major Change model of the benchmark assessment. Retrospective analyses were conducted to detect any tendency to consistently overestimate or underestimate fishing mortality, biomass, and recruitment relative to the terminal year estimates. The current stock assessment exhibits retrospective bias in spawning stock biomass (SSB) and fishing mortality rate (F) that results in decreases in SSB and increases in F compared to the results of last year's assessment.

Given the increased magnitude of the retrospective bias in the Split Series VPA, five sensitivity analyses were performed to address the retrospective bias in characterizing the uncertainty and risk in the catch advice. The current perception of the stock is different from last year primarily because of the effects of this retrospective bias. If the retrospective bias continues to persist, the state of the resource will be more pessimistic than described below.

All the results presented for adult biomass, recruitment, and fishing mortality rate below are for the Split Series VPA.

Adult population biomass (age 3+) increased from a low of 2,100 mt in 1995 to 10,900 mt in 2003, declined to about 2,500 mt in 2006 and 2007, increased to 4,500 mt in 2011, and was 4,300 mt at the beginning of 2012. Total population biomass (age 1+) shows a similar broad trend as observed from the three groundfish surveys (Figure 2). Spawning stock biomass in 2011 was estimated to be 4,600 mt (80% confidence interval: 3,800-5,700 mt) (Figure 3).

During 1973-2011, **recruitment** averaged 19.5 million fish at age 1; however, it has been below this average since 2002 (Figure 3). The 2009 and 2010 year classes are estimated at 3.1 million and 3.0 million, respectively, the lowest values in the time series.

Fishing mortality for fully recruited ages 4+ was close to or above 1.0 between 1973 and 1995, fluctuated between 0.51 and 0.97 during 1996-2003, increased in 2004 to 1.94, and then declined to 0.31 in 2011 (80% confidence interval: 0.24-0.40). The fishing mortality rate has been above the reference point of $F_{ref} = 0.25$ for the entire assessment time series (Figure 1).

If the retrospective pattern observed in this assessment continues, the 2011 fishing mortality rate estimate is expected to increase from 0.31 to 0.62, while the 2011 spawning stock biomass estimate is expected to decrease from 4,600 mt to 1,700 mt in future assessments. These changes are based on the retrospective rho adjustments used in the projections.

Productivity

Age structure, spatial distribution, and fish growth typically reflect changes in the productive potential. In both absolute numbers and percent composition, the **population age structure** estimated by the VPA displays a truncated pattern with few old fish and poor recent recruitment. **Spatial distribution patterns** from the three groundfish surveys generally follow historical averages. **Growth** has been variable without strong trends, but weights at length in recent years have trended down. Truncated age structure and lower condition factor (weights at length) indicate current resource productivity is lower than historical levels.

Outlook

This outlook is provided in terms of consequences with respect to the harvest reference points for alternative catch quotas in 2013. Uncertainty about current biomass generates uncertainty in forecast results, which is expressed here as the probability of exceeding $F_{ref} = 0.25$ and change in adult biomass from 2013 to 2014. The risk calculations assist in evaluating the consequences of alternative catch quotas by providing a general measure of the uncertainties. However, they are dependent on the data and model assumptions and do not include uncertainty due to variations in weight at age, partial recruitment to the fishery, natural mortality, systematic errors in data reporting, the possibility that the model may not reflect stock dynamics closely enough, and/or retrospective bias.

Projections were made using 2009-2011 average fishery partial recruitment and the 2009-2011 survey and fishery average weights at age from the Split Series benchmark model as inputs. The abundance of the 2011 year class (age 1 in 2012) was set as the geometric mean of the previous ten years. A number of sensitivity analyses were performed that address in various ways the retrospective bias observed in the Split Series results (Figure 4).

The Split Series formulation was approved at the last benchmark assessment and is used to estimate current stock size and fishing mortality. In recent years, catches based on this model have not reduced fishing mortality below F_{ref} and have not had the expected effect on age 3+ biomass or SSB. If the 2013 catch quota is set based on this model, this pattern of failing to achieve management objectives seems likely to continue given the model's retrospective pattern. TRAC recommends not basing 2013 catches on these unadjusted model projection results.

In order to meet management objectives ($F<F_{ref}$ and reduce F when stock condition is poor to promote rebuilding), the 2013 quota should be set below the level suggested by the Split Series model. To determine the appropriate quota level, 5 sensitivity analyses were conducted:

1. Split Series rho adjusted
2. Single Series rho adjusted
3. Catch multiplied by 5 for years 2005-2011
4. Natural mortality multiplied by 4.5 for years 2005-2011
5. Catch multiplied by 3.5 and natural mortality multiplied by 2.5 for years 2005-2011.

The latter three sensitivity analyses were chosen to minimize retrospective bias. However, it was agreed that the magnitudes of the changes in these scenarios were too great to be regarded as plausible explanations for the patterns in the data. The changes were therefore assumed to alias unknown mechanisms in a similar manner to the Split Series change in survey catchability. If the adjustments adequately alias the currently unknown mechanism(s), the broadly consistent results across the approaches all support the proposed catch advice.

The results from the five different sensitivity analyses are therefore used as the basis for the catch advice. Results for alternative catch options are shown in Figure 4 (and in the text table below for two of these catch options). Under the Split Series model, a 2013 quota of 500 mt is expected to have a low probability of exceeding F_{ref} and is expected to generate an increase in age 3+ biomass (29%) from 2013 to 2014. Both the Split Series and Single Series models have strong retrospective bias that prevent their use in catch advice projections (shown in grey font in the text table below).

Under the remaining five sensitivity analyses, to achieve both a high probability that F in 2013 will be less than F_{ref} and that adult biomass will increase, a 2013 quota of approximately 200 mt would be required. A quota of 400-500 mt implies that either F will be below F_{ref} in 2013 in only one (adjSi) of the five sensitivity analyses or the adult biomass will increase from 2013 to 2014 for the other four (but not adjSi). Thus, a 2013 quota of 400-500 mt has both positive and negative aspects. Due to the assumption used for the 2011 year class in the projections, the increase in adult biomass will be optimistic if the 2011 year class is as poor as the recent year classes.

	adjSp	adjSi	Cmults	Mmults	M&C
200 mt quota					
$P(F>F_{ref})$	0.56	0.00	0.03	0.02	0.25
F2013	0.27	0.06	0.15	0.15	0.21
deltaB	55%	10%	70%	91%	72%
B2013	881	3441	7497	1931	4270
P(B inc)	1.00	0.55	1.00	1.00	1.00
P(B inc 10%)	1.00	1.00	1.00	1.00	1.00
500 mt quota					
$P(F>F_{ref})$	1.00	0.04	0.98	0.98	1.00
F2013	0.80	0.16	0.42	0.39	0.61
deltaB	22%	1%	50%	81%	51%
B2013	881	3441	7497	1931	4270
P(B inc)	1.00	0.76	1.00	1.00	1.00
P(B inc 10%)	1.00	0.00	1.00	1.00	1.00

In the USA, there is a requirement to provide rebuilding projections when stocks are overfished. The current rebuilding scenario for Georges Bank yellowtail flounder requires solving for a value of F (F_{reb50}) that, when applied in years 2013 onwards, results in a 50% probability that SSB is greater than SSB_{msy} (43,200 mt) in year 2032. This is so far into the future that no rebuilding projections were considered.

Special Considerations

The correction of an error in the 2011 DFO survey catch at age accounts for much of the change in the estimated size of the 2009 year class in the current VPA relative to that estimated in last year's assessment.

Source Documents

Gavaris, S., R. O'Boyle, and W. Overholtz, editors. 2005. Proceedings of the Transboundary Resources Assessment Committee (TRAC): Benchmark Review of Stock Assessment Models for the Georges Bank Yellowtail Flounder Stock; 25 – 26 January 2005 and 26 – 29 April 2005. TRAC Proceedings 2005/01.

Legault, C.M., L. Alade, H.H. Stone, and W.E. Gross. 2012. Stock Assessment of Georges Bank Yellowtail Flounder for 2012. TRAC Reference Document 2012/02.

Legault, C., L. Alade, H. Stone, S. Gavaris, and C. Waters. 2008. C. Georges Bank Yellowtail Flounder. *In.* Northeast Fisheries Science Center. 2008. Assessment of 19 Northeast Groundfish Stocks Through 2007: a Report of the 3rd Groundfish Assessment Review Meeting (GARM III), Northeast Fisheries Science Center, Woods Hole, Massachusetts, August 4-8, 2008. Northeast Fish Sci Cent Ref Doc. 08-15. [available at http://www.nefsc.noaa.gov/nefsc/publications/crd/crd0815/] (Accessed July 2012).

O'Brien, L., and T. Worcester, editors. 2012. Proceedings of the Transboundary Resources Assessment Committee (TRAC): Eastern Georges Bank Cod and Haddock, and Georges Bank Yellowtail Flounder: Report of Meeting held 26-29 June 2012. TRAC Proceedings 2012/01.

Correct Citation

TRAC. 2012. Georges Bank Yellowtail Flounder. TRAC Status Report 2012/01.

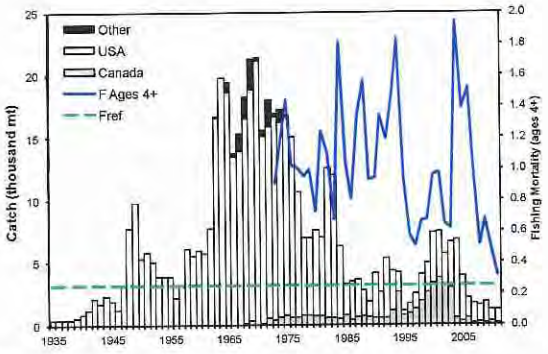


Figure 1. Catches and fishing mortality.

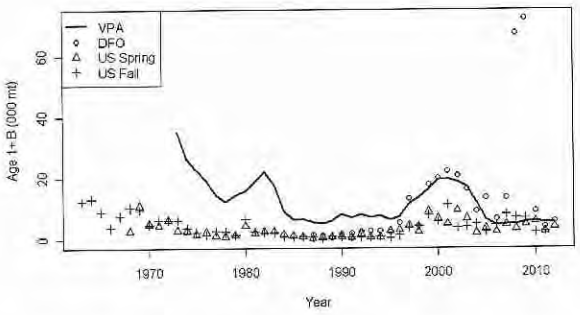


Figure 2. Ages 1+ biomasses.

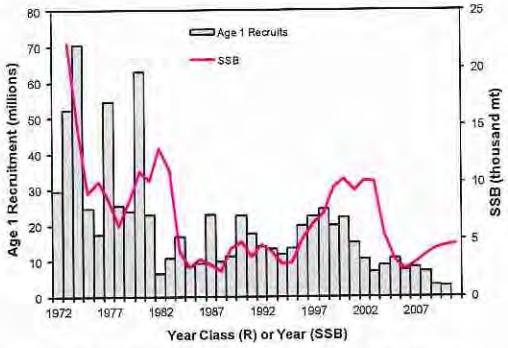


Figure 3. Recruitment and spawning stock biomass.

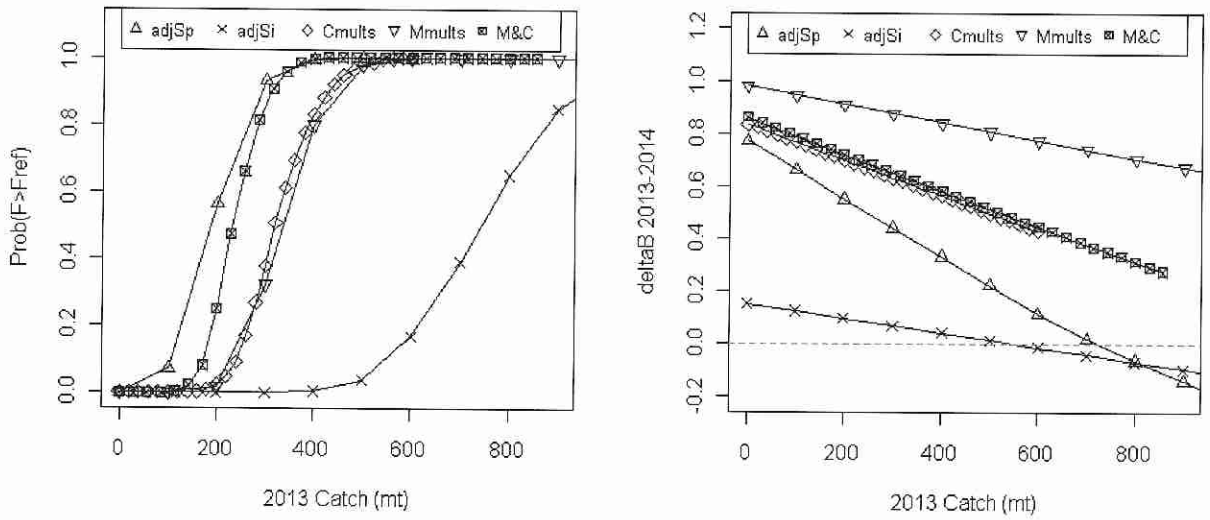


Figure 4. Risk of exceeding F_{ref}=0.25 and relative change in median adult biomass.

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Transboundary Resources Assessment Committee

Status Report 2012/02

EASTERN GEORGES BANK COD

[5Zjm; 551,552,561,562]

Summary

- Combined Canada/USA catches were 1,037 mt, including 69 mt of discards in the 2011 calendar year.

- Two alternative model formulations were used to provide status determination in the bullets below, but rho adjusted projections were used to provide catch advice. Both formulations assumed a split in the survey indices in 1994 but one assumed M=0.2, whilst the other assumed M=0.5 for ages 6+ from 1994 to 2011.

- Since 1995, adult population biomass (ages 3+) from the "split M 0.2" model has fluctuated between 3,000 mt and 10,100 mt. Biomass was 2,845 mt at the beginning of 2012. Since 1995, adult population biomass from the "split M 0.5" model has fluctuated between 4,000 mt and 12,600 mt. Biomass was 4,192 mt at the beginning of 2012. Biomass in 2012 is the second lowest in the time series from both models.

- Since 2000, the 2003 year class is the highest recruitment estimated by either model (excluding 2010). The initial estimates of the 2010 year class at 4.0 million from the "split M 0.2" model and 4.8 million from the "split M 0.5" model. However, the uncertainties on the 2010 year class are high. Both the 2003 and 2010 year classes are less than half of the average (about 10 million) during 1978-1990, when the productivity was considered to be higher. Recruitment for other recent year classes is low. Recruitment indices for the 2011 year class from the bottom trawl surveys are also low.

- Fishing mortality (F) in 2011 was estimated to be 0.49 from the "split M 0.2" model and 0.28 from the "split M 0.5" model. F has consistently remained above $F_{ref} = 0.18$.

Ce document est disponible sur l'Internet à : This document is available on the Internet at :
http://www.mar.dfo-mpo.gc.ca/science/TRAC/trac.html

Canada

July 2012

- Resource productivity is currently very poor because of low recent recruitment and low weights at age.

- In recent years, catches based on the "split M 0.2" and "split M 0.5" unadjusted formulations have not reduced fishing mortality below F_{ref} and have not had the expected effect on age 3+ biomass or spawning stock biomass (SSB). TRAC recommends not basing 2013 catches on these unadjusted model projection results , but rather on the rho adjusted projection results.

- Considering both models, under the rho adjusted "split M 0.2" assumption, a 50% probability of not exceeding F_{ref} implies catches less than 400 mt, and of less than 775 mt under the rho adjusted "split M 0.5" assumption. Achieving a 20% increase in SSB between 2013 and 2014 implies catches less than 575 mt under the rho adjusted "split M 0.2" scenario, and of less than 400 mt under the rho adjusted "split M 0.5" scenario. Not exceeding F_{ref} and achieving a 20% increase in biomass, therefore, implies catches of less than 400 mt.

Catches and Biomass (thousands mt); Recruits (millions)

		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Avg[1]	Min[1]	Max[1]
Canada[9]	Quota	1.3	1.0	0.7	1.3	1.4	1.6	1.2	1.0	0.9	0.5			
	Catch	1.5	1.3	0.9	1.4	1.2	1.5	1.2	0.8	0.7		1.2	0.7	1.5
	Landed	1.3	1.1	0.6	1.1	1.1	1.4	1.0	0.7	0.7		1.0	0.6	1.4
	Discard	0.2	0.1	0.2	0.3	0.1	0.1	0.2	0.1	<0.1		0.2	<0.1	0.3
USA[9]	Quota[2]		0.3	0.3	0.4	0.5	0.7	0.5	0.3	0.2	0.2			
	Catch[2]		0.2	0.2	0.3	0.3	0.5	0.5	0.3	0.2		0.4	0.2	0.7
	Landed	1.9	1.0	0.2	0.1	0.2	0.2	0.4	0.4	0.3		0.5	0.1	1.9
	Discard	0.1	0.1	0.3	0.1	0.4	0.0	0.2	0.1	<0.1		0.2	<0.1	0.4
Total[9]	Quota		1.3	1.0	1.7	1.9	2.3	1.7	1.3	1.1	0.7			
	Catch	3.5	2.3	1.3	1.7	1.8	1.8	1.9	1.3	1.0		1.8	1.0	3.5
	Catch[3,4]		1.5	1.1	1.7	1.5	2.0	1.7	1.1	0.9				
From "split M 0.2" model														
	Adult Biomass[5]	5.9	5.1	3.0	4.2	3.9	3.4	3.7	3.3	2.7	2.8	3.8	2.7	5.9
	Age 1 Recruits	0.4	2.8	0.5	0.9	1.4	0.9	0.9	1.0	4.0		1.4	0.4	4.0
	Fishing mortality[6]	0.80	0.86	0.43	0.74	0.50	0.55	0.65	0.58	0.49		0.6	0.4	0.9
	Exploitation Rate[6]	50%	53%	32%	48%	36%	38%	44%	40%	35%		42%	32%	53%
From "split M 0.5" model														
	Adult Biomass[5]	7.3	6.6	4.0	6.1	6.2	5.7	6.4	5.2	4.2	4.2	5.6	4.0	7.3
	Age 1 Recruits	0.5	4.4	0.6	1.0	1.7	1.0	1.0	1.2	4.8		1.8	0.5	4.8
	Fishing mortality[6]	0.60	0.61	0.31	0.50	0.27	0.25	0.31	0.33	0.28		0.4	0.3	0.6
	Exploitation Rate[7]	41%	42%	24%	36%	22%	20%	25%	26%	22%		29%	20%	42%
	Exploitation Rate[8]	36%	37%	21%	31%	19%	18%	21%	22%	19%		25%	18%	37%

[1]1978 – 2011
[2]for fishing year from May 1 – April 30
[3]for Canadian calendar year and USA fishing year May 1-April 30
[4]sum of Canadian landed, Canadian Discard, and USA Catch (includes discards)
[5]Jan 1 ages 3+
[6]ages 4-9
[7]ages 4-5
[8]ages 6-9
[9] unless otherwise noted, all values reported are for calendar year

Fishery

Combined Canada/USA catches averaged 17,208 mt between 1978 and 1992, peaking at 26,464 mt in 1982. Catches declined to 1,683 mt in 1995, then fluctuated at about 3,000 mt until 2004, subsequently declining. Catches in 2011 were 1,037 mt, including 69 mt of discards (Figure 1).

Canadian catches decreased to 702 mt in 2011 from 840 mt in 2010. Since 1995, with reduction in cod quotas, the fishery has reduced targeting for cod through changes in fishing gear and practices. Discards were estimated at 13 mt from the mobile gear fleet and at 0 mt from the fixed gear fleet. Since 1996, the Canadian scallop fishery has not been permitted to land cod. Estimated discards of cod by the Canadian scallop fishery were 29 mt in 2011.

USA catches decreased to 294 mt in 2011 from 486 mt in 2010. Since December 1994, a year-round closure of Area II has been in effect, with the exception of Special Access Programs in 2004 and since 2010. With the implementation of a catch share system in 2010 most of the fleets are now managed by quotas. Estimated discards of cod for 2011 were 27 mt, almost entirely from the otter trawl groundfish fishery.

The combined Canada/USA 2011 **fishery age composition** (landings + discards) was dominated by the 2006 year class at age 5 (30% by number, 39% by weight), followed by the 2007 year class at age 4 (24% by number, 23% by weight) and the 2008 year class at age 3 (20% by number, 13% by weight). The 2003 year class at age 8 made little contribution to the 2011 catch (2% by number, 4% by weight). The contribution to the catch of fish older than age 7 continued to be small in recent years: 5% by number and 10% by weight in 2011. Both the Canadian and the USA fisheries were adequately sampled to determine length composition of the catch.

Harvest Strategy and Reference Points

The Transboundary Management Guidance Committee (TMGC) has adopted a strategy to maintain a low to neutral risk of exceeding the fishing mortality limit reference, $F_{ref} = 0.18$ (established in 2002 by the TMGC). When stock conditions are poor, fishing mortality rates should be further reduced to promote rebuilding.

State of Resource

Evaluation of the state of the resource was based on results from an age structured analytical assessment (Virtual Population Analysis, VPA), which used fishery catch statistics and sampling for size and age composition of the catch for 1978 to 2011 (including discards). The VPA was calibrated to trends in abundance from three bottom trawl survey series: NMFS spring, NMFS fall, and DFO.

Two VPA model formulations were established during the benchmark assessment meeting in 2009. These model formulations will be referred to as the "split M 0.2" and "split M 0.5" model. The survey abundance indices were split in 1993-1994 for both model formulations. Natural mortality (M) was fixed at 0.2 for all the ages in all years for the "split M 0.2" model and was fixed at 0.5 for ages 6+ in years after 1994 for the "split M 0.5" model. It was recommended at the 2009 benchmark meeting to consider both model formulations; this will be reconsidered at

the next benchmark. Retrospective analyses were conducted to detect any tendency to consistently overestimate or underestimate fishing mortality (F), biomass (B), and recruitment relative to the terminal year estimates. The current stock assessments exhibit retrospective bias in B and F, which results in decreases in B and increases in F compared to the results of last year's assessment.

Given the strong retrospective bias, alternative approaches were considered to address the retrospective pattern to characterize uncertainty and risk in catch advice. The adult biomass, recruitment, and fishing mortality estimates presented below are from the unadjusted benchmark model formulations.

Since 1995, **adult population biomass** (ages 3+) from the "split M 0.2" model has fluctuated between 3,000 mt and 10,100 mt. Biomass was 2,845 mt (80% confidence interval: 2,409 mt – 3,705 mt) at the beginning of 2012 (Figure 2). Since 1995, adult population biomass from the "split M 0.5" model has fluctuated between 4,000 mt and 12,600 mt. Biomass was 4,192 mt (80% confidence interval: 3,586 mt – 5,474 mt) at the beginning of 2012 (Figure 2). In both models, the increase since 2005 was largely due to recruitment and growth of the 2003 year class. Lower weights at age in the population in recent years and generally poor recruitment have contributed to the lack of sustained rebuilding. Survey biomass indices have been lower since the mid-1990s. Survey biomasses for the spring 2012 NEFSC surveys and for the 2012 DFO survey were among the lowest in their time series. The estimated adult population biomass at the beginning of 2012 from the VPA was only 5.5% ("split M 0.2" model) and 8% ("split M 0.5" model) of the 1978 biomass. The 2012 adult population biomass estimates are the second lowest in the time series according to both models (Figure 3).

Recruitment at age 1 has been low in recent years (Figure 2). Since 2000, the 2003 year class (2.8 million fish from the "split M 0.2" model and 4.4 million fish from the "split M 0.5" model) is the highest recruitment estimated by either model (excluding 2010). The initial estimates of the 2010 year class at 4.0 million from the "split M 0.2" model and 4.8 million from the "split M 0.5" model are stronger than the 2003 year class based on the 2012 assessment. However, the uncertainties on the 2010 year class are high, with a 46% relative standard error on age 2 from both models. Both the 2003 and 2010 year classes are less than half of the average (about 10 million) during 1978-1990, when the productivity was considered to be higher. Recruitment for the 2002 and 2004 year classes was the lowest on record in both models. The 2006 year class at age 1 was 1.4 million from the "split M 0.2" model and at 1.7 million from the "split M 0.5" model. The 2007, 2008, and 2009 year classes were similar in strength to the 2000 year class, which was only about 10% of the 1978-1990 average recruitment in both models. The current biomass is well below 25,000 mt, above which there is a better chance to get a higher recruitment (Figure 4). Recruitment indices for the 2011 year class from the bottom trawl surveys are low.

Fishing mortality (population weighted average of ages 4-9) was high prior to 1994. F declined in 1995 to F=0.36 for the "split M 0.2" model and to 0.24 for the "split M 0.5" model due to restrictive management measures. F in 2011 was estimated to be 0.49 (80% confidence interval: 0.40-0.65) from the "split M 0.2" model and 0.28 (80% confidence interval: 0.24-0.38) from the "split M 0.5" model. Both models show recent reductions in F, but fishing mortality has consistently remained above the F_{ref} of 0.18 (Figure 1).

If the retrospective bias observed in this assessment continues, the 2011 fishing mortality rate estimate is expected to increase in future assessments from 0.49 to 0.89 ("split M 0.2" model) and from 0.28 to 0.45 ("split M=0.5" model), while the 2012 spawning stock biomass estimate is expected to decrease from 2,845 mt to 1,395 mt ("split M 0.2" model) and from 4,192 mt to 2,382 mt ("split M=0.5" model). These changes are based on the retrospective rho adjustments used in the projections.

Productivity

Recruitment, age structure, fish growth, and spatial distribution typically reflect changes in the productive potential. The current biomass is well below 25,000 mt, above which there is a better chance to get a higher **recruitment** (Figure 4). In absolute numbers, the **population age structure** displays a low proportion of ages 7+ compared to the 1980s. Average weight at length, used to reflect condition, has been stable in the past, but has started to decline in recent years. Length and weight at age has also declined in recent years, which could hamper biomass rebuilding due to potential changes in fecundity. In the 2011 fishery, **size at age** remains low. Research survey **spatial distribution** patterns of adult (3+) cod have not changed over the past decade. Resource productivity is currently very poor because of low recent recruitment and low weights at age compared to the 1980s.

Outlook

This outlook is provided in terms of consequences with respect to the harvest reference points for alternative catch quotas in 2013. Uncertainty about current biomass generates uncertainty in forecast results, which is expressed here as the probability of exceeding F_{ref} =0.18 and change in adult biomass from 2013 to 2014. The risk calculations assist in evaluating the consequences of alternative catch quotas by providing a general measure of the uncertainties. However, they are dependent on the data and model assumptions and do not include uncertainty due to variations in weight at age, partial recruitment to the fishery, natural mortality, systematic errors in data reporting, the possibility that the model may not reflect stock dynamics closely enough, and/or retrospective bias.

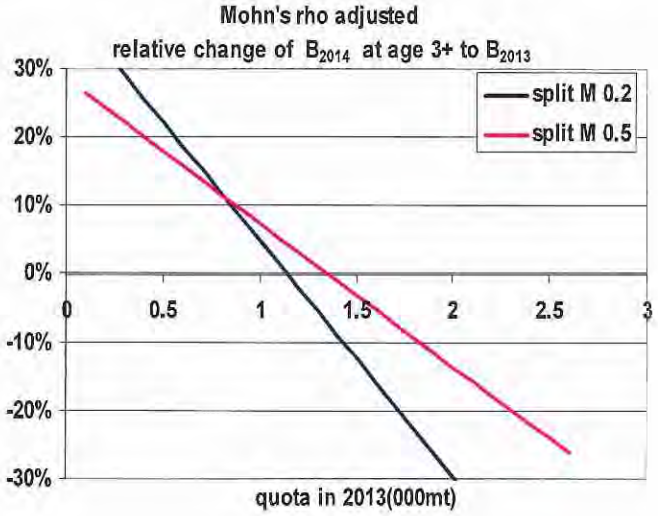
For **projections**, the 2009-2011 fishery average weights at age and the 2010-2012 survey average weights at age were assumed for the fishery and population weights at age in 2013-2014, respectively. However, for the slower growing 2003 year class, fishery weight at age 9 in 2012 was based on a cohort regression. The 2007-2011 average partial recruitment was assumed for the partial recruitment pattern in 2012 and 2013. The 2007-2011 geometric mean of recruitment at age 1 from each model was used for 2012-2014 projections. Catch in 2012 was assumed to be equal to the 675 mt quota, and F=0.18 in 2013. Deterministic projection and stochastic projections are provided from each of the model results.

Considering the strong retrospective bias exhibited by both models, the Mohn's rho adjusted deterministic projection and stochastic projections are also provided. In both cases, the rho adjustments were computed as the average Mohn's rho from seven year peels for the 3^+ biomass (SSB) applied to all ages. The results are shown below and in Figures 5-6.

2013 Catch (mt)

Probability of exceeding F_{ref} in 2013	0.25	0.5	0.75
"Split M 0.2"	750 mt	875 mt	1,025mt
"Split M 0.5"	1,175 mt	1,400 mt	1,625 mt
"Split M 0.2": Mohn's rho adjusted	325 mt	400 mt	475 mt
"Split M 0.5": Mohn's rho adjusted	625 mt	775 mt	875 mt

Neutral risk (50%) that biomass will not increase by:	0%	10%	20%
"Split M 0.2"	2,475 mt	1,775 mt	1,050 mt
"Split M 0.5"	2,475 mt	1,525 mt	575 mt
"Split M 0.2": Mohn's rho adjusted	1,175 mt	900 mt	575 mt
"Split M 0.5": Mohn's rho adjusted	1,450 mt	900 mt	400 mt



In recent years, catches based on the "split M 0.2" and "split M 0.5" unadjusted formulations have not reduced fishing mortality below F_{ref} and have not had the expected effect on SSB. If the 2013 quota is set based on these models, this pattern of failing to achieve management objectives seems likely to continue given the models' retrospective patterns. Sensitivity analysis conducted during the TRAC meeting demonstrated that had the rho adjusted catch advice been followed last year, the resulting fishing mortality rate would have been closer to the F_{ref} than using the unadjusted projections. TRAC recommends not basing 2013 catches on these unadjusted model projection results (shown in grey font in Table 1 and the text table above), but rather on the rho adjusted projection results.

Considering both models, under the rho adjusted "split M 0.2" assumption, a 50% probability of not exceeding F_{ref} implies catches less than 400 mt, and of less than 775 mt under the rho

adjusted "split M 0.5" assumption. However, given the extremely low SSB, TRAC considers that management should try to harness the growth potential from the 2010 year class to rebuild the spawning stock biomass. Achieving a 20% increase in SSB between 2013 and 2014 implies catches less than 575 mt under the rho adjusted "split M 0.2" scenario, and of less than 400 mt under the rho adjusted "split M 0.5" scenario. Not exceeding F_{ref} and achieving a 20% increase in biomass, therefore, implies catches of less than 400 mt (see text tables above and Table 1). No fishing in 2013 implies an increase in adult biomass from 2013 to 2014 of about 30-40%.

While management measures have resulted in decreased exploitation rate since 1995, fishing mortality has remained above F_{ref} and adult biomass has fluctuated at a low level. The continuing poor recruitment since the early 1990s is an important factor for this lower productivity. The initial estimate of the 2010 year class is higher than adjacent year classes, but is still well below the average of 1978-1990, when the productivity is considered to have been higher. Rebuilding will not occur without improved recruitment.

Special Considerations

Although the VPA used in both models for management advice assumes a split in the survey indices, the mechanisms for the large changes in survey catchability are not easily explained. These changes in survey catchability are assumed to alias an unknown mechanism that produces a better fitting model. The inability to plausibly explain these survey catchability changes causes increased uncertainty in this assessment.

The range of stock perceptions and outlooks from the two rho adjusted projections reflect the substantial uncertainty in the assessment. Despite these uncertainties, all assessment results indicate that low catches are needed to promote rebuilding.

Source Documents

Wang, Y., and L. O'Brien. 2012. Assessment of Eastern Georges Bank Atlantic Cod for 2012. TRAC Reference Document 2012/02.

O'Brien, L., and T. Worcester, editors. 2009. Proceedings of the Transboundary Resources Assessment Committee (TRAC): Transboundary Resources Assessment Committee Eastern Georges Bank Cod Benchmark Assessment. TRAC Proceedings 2009/02.

O'Brien, L., and T. Worcester, editors. 2012. Proceedings of the Transboundary Resources Assessment Committee (TRAC): Eastern Georges Bank Cod and Haddock, and Georges Bank Yellowtail Flounder. Report of Meeting held 26-29 June 2012. TRAC Proceedings 2012/01.

Correct Citation

TRAC. 2012. Eastern Georges Bank Cod. TRAC Status Report 2012/02.

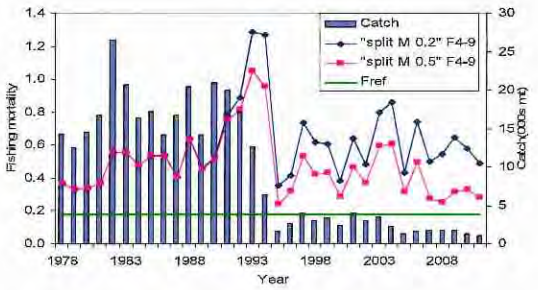


Figure 1. Catches and fishing mortality (F).

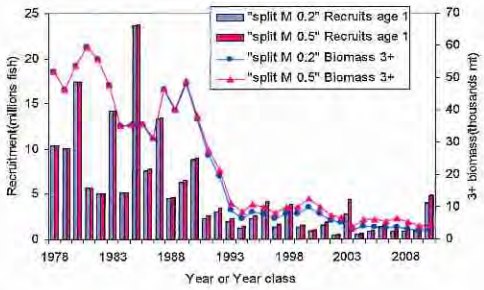


Figure 2. Biomass and recruitment.

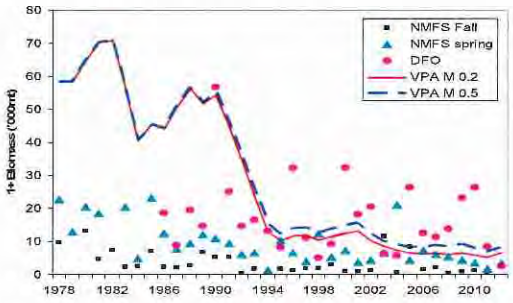


Figure 3. Age 1+ biomass from the surveys and assessments. The survey biomasses are not adjusted by survey catchability.

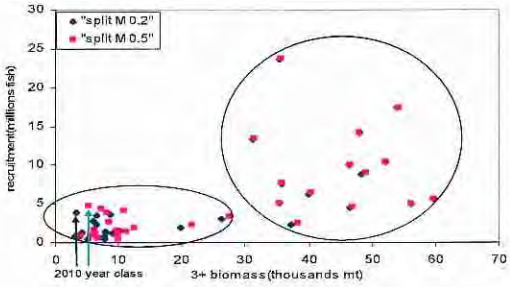


Figure 4. Stock recruitment patterns. Black and green arrows indicate 2010 year class at age 1 for from "split M 0.2" model and "split M 0.5" model, respectively.

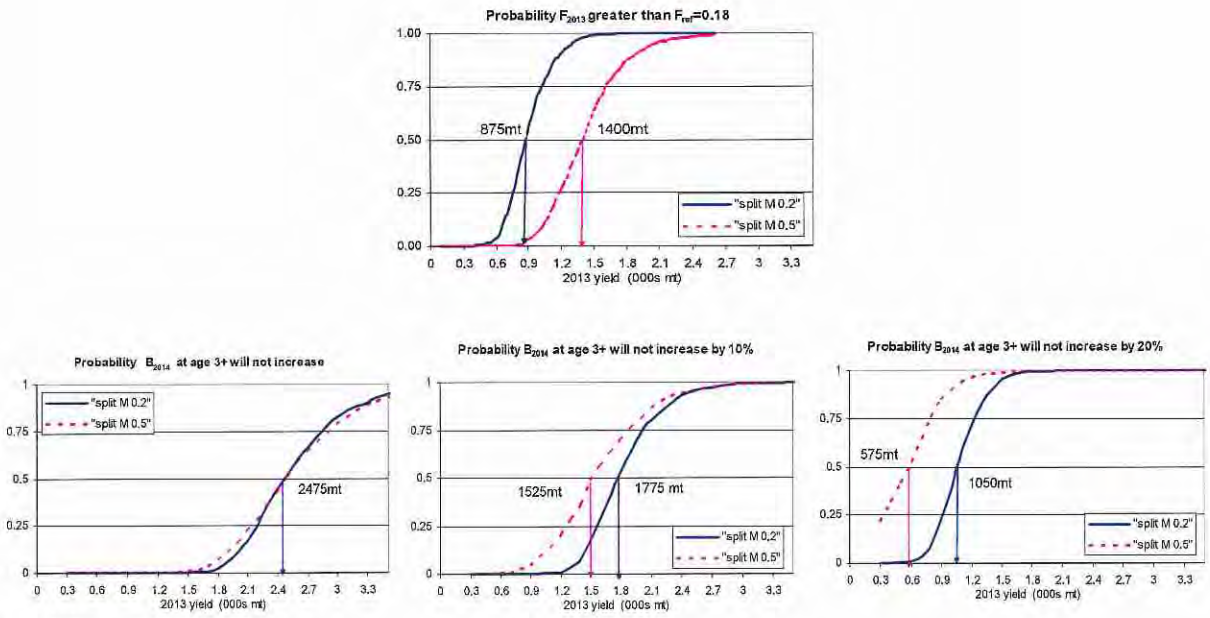


Figure 5. Projections and risks.

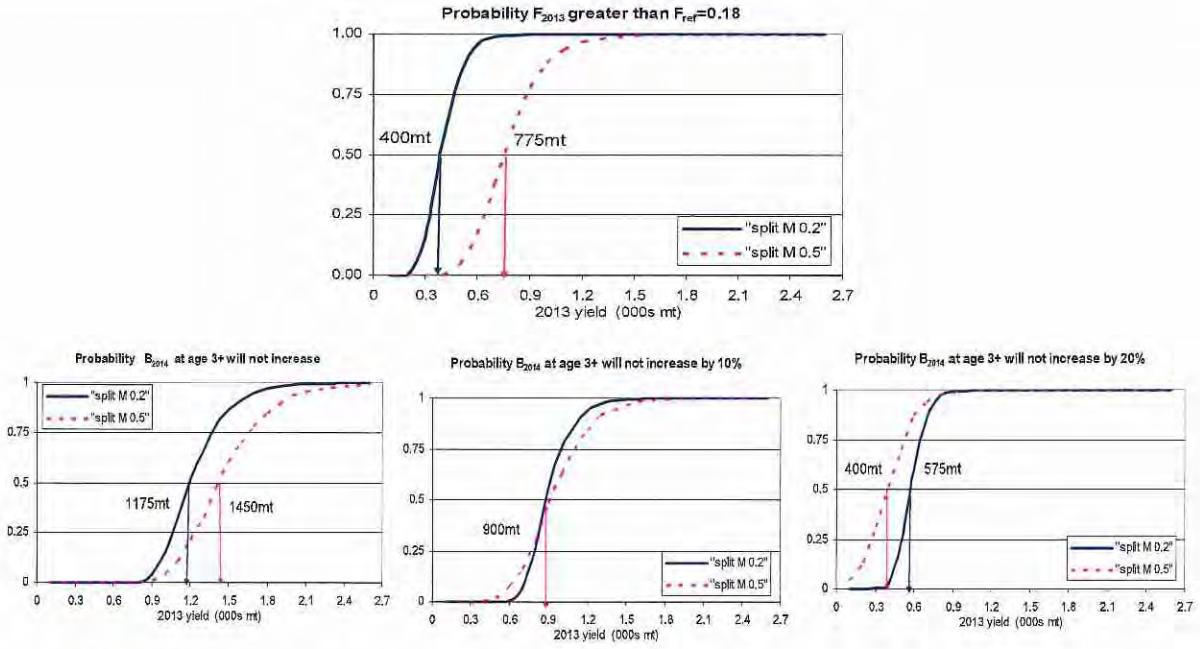


Figure 6. Mohn's rho adjusted projection and risks.

Table 1. Anticipated effects of different catch in 2013: comparison of probability of exceeding F_{ref} and neutral risk that stock size will not increase beyond the specified percentage for different projections analyses. The model options in gray font have strong retrospective bias that prevent their use for setting catch advice. The spawning biomass in 2013 will be 6,438 mt ("split M 0.2" model) and 8,461 mt ("split M 0.5" model). The Mohn's rho adjusted spawning biomass in 2013 will be 2,806 mt ("split M 0.2" model) and 4,539 mt ("split M 0.5" model).

	Probability of exceeding F_{ref} in 2013				Neutral risk that spawning stock increase in 2014 will not exceed:			
			Rho Adj.				Rho Adj.	
Catch 2013			Split M=0.2	Split M=0.5			Split M=0.2	Split M=0.5
325			25%	25% or less			30%	20% or more
400			50%				20% or more	
475			75%					10% to 20%
575							10% to 20%	
625								
750				50% or less				
775								
875				75%				
900							5% to 10%	5% to 10%
1025								
1050								
1175							0%	
1400							-10% to -15%	0%
1450								
1525							-15% to -25%	-5% to -10%
1625								
1775							-25%	-10%
2475							<-30%	-25%

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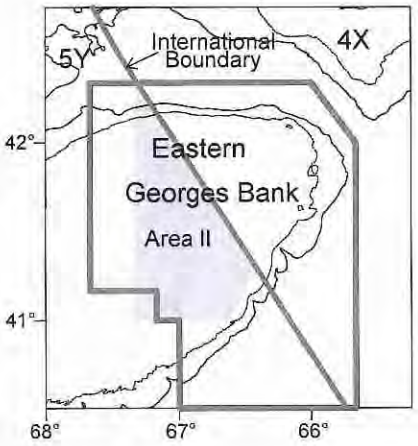
NOAA FISHERIES NATIONAL MARINE FISHERIES SERVICE

Transboundary Resources Assessment Committee

Status Report 2012/03

EASTERN GEORGES BANK HADDOCK

[5Zjm; 551,552,561,562]



Summary

- Combined Canada and USA catches in 2011 were 12,655 mt.
- Adult biomass decreased to 62,200 mt in 2005 and subsequently increased to 172,700 mt in 2009. At the beginning of 2012, adult biomass had decreased to 70,700 mt.
- The current estimate for the outstanding 2010 year class is 589 million age 1 fish, which would make it the largest cohort in the assessment time series. The preliminary estimate for the 2011 year class is 105 million age 1 fish. Except for the strong 2000 and 2011 year classes and the exceptional 2003 and 2010 year classes, recruitment has fluctuated between 2.1 and 29.4 million since 1990.
- Fishing mortality was below $F_{ref} = 0.26$ during 1995 to 2003, above or near F_{ref} in 2004 to 2006, but has subsequently been below F_{ref} and was 0.14 in 2011.
- This stock exhibits positive features such as an expanding age structure, broad spatial distribution, and has produced 2 exceptional and 2 strong year classes in the last 12 years. However, fish condition has been below the series average since 2003, similar to the trends in condition observed in Eastern Georges Bank cod and Georges Bank yellowtail flounder.
- Assuming a 2012 catch equal to the 16,000 mt total quota, a combined Canada/USA catch of 10,400 mt in 2013 results in a neutral risk (50%) that the 2012 fishing mortality rate would exceed $F_{ref} = 0.26$. Due to the entry of the 2010 year class into the 3+ group in 2013 and its subsequent growth, the estimated probability that the adult biomass will decline from 2013 to 2014 is virtually 0% at any of the catch scenarios considered. Adult biomass is projected to be 306,200 mt (a record-high) at the beginning of 2014.

Ce document est disponible sur l'Internet à : This document is available on the Internet at :
http://www.mar.dfo-mpo.gc.ca/science/TRAC/trac.html

Canada

July 2012

Catches and Biomass (thousands mt); Recruits (millions)

		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Avg[1]	Min[1]	Max[1]
Canada[8]	**Quota**	6.9	9.9	15.4	14.5	12.7	15.0	18.9	17.6	12.5	9.1			
	Landed	6.8	9.7	14.5	12.0	11.9	14.8	17.6	16.6	11.2		5.7	0.5	17.6
	Discard	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0		0.1	0.0	0.2
USA[8]	**Quota[2]**		5.1	7.6	7.5	6.3	8.1	11.1	12.0	9.5	6.9			
	Catch[2]		1.1	0.6	0.7	0.3	1.6	1.6	1.8	1.1				
	Landed	1.7	1.8	0.6	0.3	0.3	1.1	2.2	2.2	1.3		2.1	0.0	9.1
	Discard	0.1	0.2	0.1	0.3	0.3	0.1	0.1	0.0	0.1		0.6	0.0	7.6
Total[8]	**Quota[3]**		15.0	23.0	22.0	19.0	23.0	30.0	29.6	22.0	16.0			
	Catch[3,4]		10.9	15.1	12.7	12.3	17.1	17.6	18.4	12.3				
	Catch	8.6	11.9	15.3	12.6	12.5	16.0	19.9	18.8	12.7		8.3	2.1	23.3
Adult Biomass[5]		86.4	81.6	62.2	130.9	160.7	162.2	172.7	136.6	99.0	70.7	50.5[6]	4.9[6]	172.7[6]
Age 1 Recruits		2.7	328.0	5.9	18.8	5.8	7.8	4.3	4.9	588.9	104.9	36.3[6]	0.2[6]	588.9[6]
Fishing mortality[7]		0.19	0.27	0.25	0.25	0.13	0.08	0.12	0.15	0.14		0.29	0.08	0.57
Exploitation Rate[7]		16%	22%	20%	20%	11%	7%	11%	13%	12%		22%	7%	40%

[1]1969 – 2011
[2]for fishing year from May 1st – April 30th
[3]for Canadian calendar year and USA fishing year May 1st – April 30th
[4]sum of Canadian Landed, Canadian Discard, and USA Catch (includes discards)
[5]January 1st ages 3+
[6]1931 – 1955, 1969 – 2012
[7]ages 4-8 for 1969 – 2002; ages 5-8 for 2003 – 2011
[8] unless otherwise noted, all values reported are for calendar year

Fishery

Under restrictive management measures, **combined Canada/USA catches** declined from 6,504 mt in 1991 to a low of 2,150 mt in 1995, varied between about 3,000 mt and 4,000 mt until 1999, and increased to 15,256 mt in 2005 (Figure 1). Combined catches then decreased to 12,508 mt in 2007 but increased to 19,856 in 2009 and then decreased to 12,655 mt in 2011.

The **Canadian catch** in 2011 decreased to 11,247 mt from 16,592 mt in 2010. The weight of all Canadian landings was monitored at dockside. Compliance with mandatory retention is thought to be high, so discards in the groundfish fishery are considered to be negligible. Discards of haddock by the Canadian sea scallop fishery ranged between 29 mt and 186 mt since 1969 and were 15 mt in 2011.

USA catches in 2011 decreased to 1,409 mt from 2,201 mt in 2010. Landings were 1,322 mt and discards were estimated to be 87 mt, primarily from the large mesh otter trawl fishery, but discards also occurred in the longline fleet. Landings are reported by dealers, and discards are estimated from at-sea observer data.

The **combined Canada/USA fishery catch** (landings + discards) in 2011 was dominated by the 2003 year class (age 8) by numbers and weight. Both the Canadian and the USA fisheries were adequately sampled to determine length composition of the catch.

Harvest Strategy and Reference Points

The Transboundary Management Guidance Committee (TMGC) has adopted a strategy to maintain a low to neutral risk of exceeding the fishing mortality reference, $F_{ref} = 0.26$ (established in 2002 by the TMGC). When stock conditions are poor, fishing mortality rates should be further reduced to promote rebuilding.

State of Resource

Evaluation of the state of the resource was based on results from an age structured analytical assessment (Virtual Population Analysis, VPA) that used fishery catch statistics and sampling for size and age composition of the catch for 1969 to 2011 (including discards). The VPA was calibrated to trends in abundance from three bottom trawl survey series: NMFS spring, NMFS fall and DFO. Data to approximate the age composition of the catch during 1931 to 1955 were used to reconstruct a population analysis of eastern Georges Bank haddock suitable for comparison of productivity to recent years. Retrospective analyses were conducted to detect any tendency to consistently overestimate or underestimate fishing mortality, biomass and recruitment relative to the terminal year estimates. The current stock assessment does not display a retrospective bias.

Improved **recruitment** since 1990, lower exploitation, and reduced capture of small fish in the fisheries allowed the **adult population biomass** (ages 3+) to increase from near an historical low of 10,400 mt in 1993 to 86,400 mt in 2003 (Figure 2). Adult biomass decreased to 62,200 mt in 2005 and subsequently increased to 172,700 mt in 2009, higher than the 1931-1955 maximum biomass of about 90,000 mt. At the beginning of 2012, the adult biomass had decreased to 70,700 mt (80% confidence interval: 60,000 mt – 83,700 mt). The tripling of the adult biomass after 2005 was due to the exceptional 2003 year class, currently estimated at 328 million age 1 fish. The current estimate for the outstanding 2010 year class is 589 million age 1 fish, which would make it the largest cohort in the assessment time series: 1931-1955 and 1969-2011. The preliminary estimate for the 2011 year class is 105 million age 1 fish. Except for the strong 2000 and 2011 year classes and the exceptional 2003 and 2010 year classes, recruitment has fluctuated between 2.1 and 29.4 million since 1990.

Fishing mortality (population weighted for ages 4-8) fluctuated between 0.26 and 0.47 during the 1980s, and markedly increased in 1992 and 1993 to about 0.5, the highest observed. From 2003 to the present, the age at full recruitment to the fishery has been at age 5 (rather than age 4, previously) due to a decline in size at age of haddock. Fishing mortality (population weighted for ages 4-8 prior to 2003 and ages 5-8 for 2003-2011) was below $F_{ref} = 0.26$ during 1995 to 2003, above or near F_{ref} in 2004 to 2006, but has subsequently been below F_{ref} and was 0.14 in 2011 (80% confidence interval: 0.11 – 0.15, Figure 1).

Productivity

Recruitment, as well as age structure, spatial distribution and fish growth reflect changes in the productive potential. Recruitment, while highly variable, has generally been higher when adult biomass has been above 40,000 mt, which has been the case since 2001 (Figure 3). The **population age structure** displays a broad representation of age groups, reflecting improving recruitment and lower exploitation since 1995. The **spatial distribution** patterns observed during

the most recent bottom trawl surveys were similar to the average patterns over the previous ten years. There has been a general decline in weights at age since the late 1990s. The 2003 year class appears to have reached its maximum growth potential. Fish condition as measured by Fulton's K derived from the DFO survey exhibits a declining trend since about 2001 and declined to its lowest value in 2011. Except in 2009, the condition factor of haddock has been below the series average since 2003, similar to the trends in condition observed in Eastern Georges Bank cod and Georges Bank yellowtail flounder.

Outlook

This outlook is provided in terms of consequences with respect to the harvest reference points for alternative catch quotas in 2013. Uncertainty about current biomass generates uncertainty in forecast results, which is expressed here as the probability of exceeding F_{ref}=0.26 and change in adult biomass from 2013 to 2014. The risk calculations assist in evaluating the consequences of alternative catch quotas by providing a general measure of the uncertainties. However, they are dependent on the data and model assumptions and do not include uncertainty due to variations in weight at age, partial recruitment to the fishery, natural mortality, systematic errors in data reporting or the possibility that the model may not reflect stock dynamics closely enough.

For projections, the most recent 3-year survey and fishery average weights at age were used as inputs. Fishery partial recruitment (PR) was based on the 2003 to 2011 year population weighted average. This resulted in a PR on the age 9+ group of 0.3, which differs from what was used last year (when a value of 1.0 was used despite the VPA PR being 0.3). No growth was assumed for the 2003 year class from ages 9 to 11. The 2003 year class values were used for the 2010 year class for weights and partial recruitment. Assuming a 2012 catch equal to the 16,000 mt total quota, a combined Canada/USA catch of 10,400 mt in 2013 results in a neutral risk (50%) that the 2013 fishing mortality rate would exceed F_{ref} = 0.26 (Figure 4). The 9+ age group (34%), of which the 2003 year class is the main component, and the 2010 year class (44%) are expected to constitute the majority of the 2013 catch biomass. A catch of 9,300 mt in 2013 results in a low risk (25%) that the 2013 fishing mortality rate will exceed F_{ref}. A catch of 11,900 mt in 2013 results in a high risk (75%) that the 2013 fishing mortality rate will exceed F_{ref}. Due to the entry of the 2010 year class into the 3+ group in 2013 and its subsequent increase in weight, the estimated probability that the adult biomass will decline from 2013 to 2014 is virtually 0% at any of the catch scenarios considered. Adult biomass is projected to be 306,200 mt (a record-high) at the beginning of 2014.

Probability of exceeding F_{ref}	**25%**	**50%**	**75%**
2013 catch	9,300 mt	10,400 mt	11,900 mt

Special Considerations

Although the fishing mortality reference is based on a PR of 1 for older ages, the benchmark model indicates a PR of 0.3 for the 9+ age group. Several corroborating factors influenced the decision to use the lower PR produced by the model, e.g. the predicted versus observed 2011 catch at age supports the use of the lower PR.

Last year, the PR on ages 9+ was set equal to 1.0 for projections. This year, it has been set at 0.3 to match the VPA estimated PR. If this reduced PR for ages 9+ occurs in 2012 and the quota is caught, then the fishing mortality rate would be expected to be above $F_{ref} = 0.26$.

In 2013, the 2010 year class will be mostly below the current minimum size regulation used by the US, which could lead to significant discarding. This is not expected to be an issue in the Canadian fishery due to the different gear types and management measures.

Source Documents

O'Brien, L., and T. Worcester, editors. 2012. Proceedings of the Transboundary Resources Assessment Committee (TRAC): Eastern Georges Bank Cod and Haddock, and Georges Bank Yellowtail Flounder: Report of Meeting held 26-29 June 2012. TRAC Proceedings 2012/01.

Van Eeckhaute, L., E. Brooks, and S.C. Hansen. 2012. Assessment of Haddock on Eastern Georges Bank for 2012. TRAC Reference Document 2012/01.

Correct Citation

TRAC. 2012. Eastern Georges Bank Haddock. TRAC Status Report 2012/03.

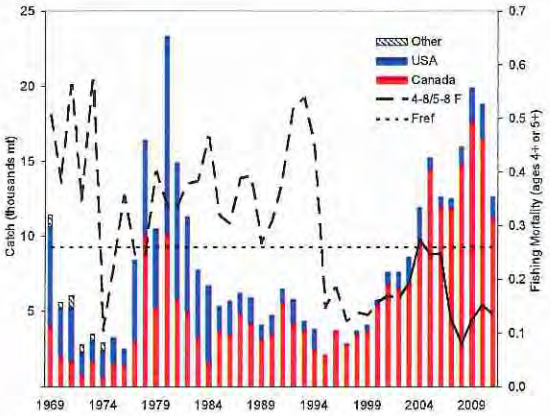


Figure 1. Catches (bars) and fishing mortality (line); (F=4-8 for 1969-2002 and 5-8 for 2003-2011).

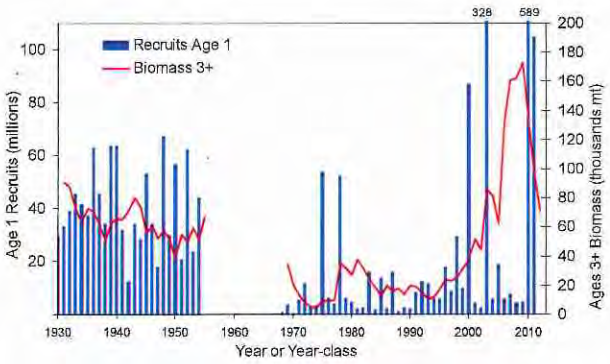


Figure 2. Biomass (line) and recruitment (bars).

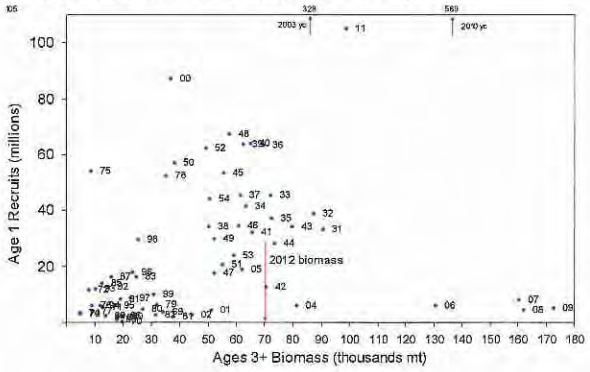


Figure 3. Stock recruitment patterns.

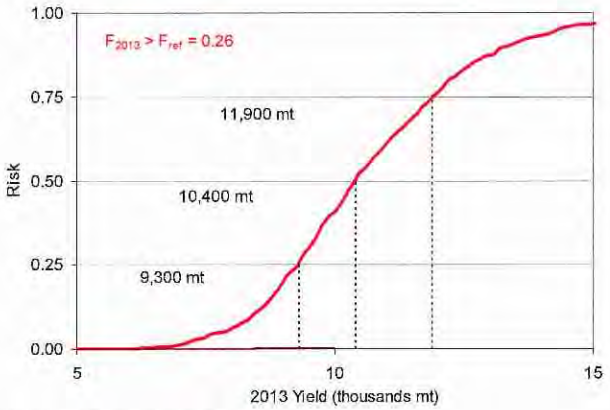


Figure 4. Projection risks.

I'm writing to ask for your support for an anti-seafood fraud effort currently underway in Congress. It's important for the industry to be a part of this effort from the beginning; to be sure we have our voices heard.

We need a response by tomorrow at 10 a.m.

As you know, the issue of seafood fraud has been much talked about in the press over the past several months. Interest in the subject spiked last summer when Beth Daley and Jen Abelson of the *Boston Globe* wrote an award-winning series on seafood fraud. Their DNA tests found that 48% of the seafood that they purchased in restaurants and stores was not what the menus and in-store displays stated.

In 2009, the Government Accountability Office issued a report stating that the federal government was not effectively addressing seafood mislabeling, especially regarding the 85% of seafood in the United States that is imported. All of us who harvest and process seafood here in America are harmed when imports are mislabeled as domestic products.

Tomorrow, Congressmen Ed Markey and Barney Frank of Massachusetts will introduce the SAFE Seafood Act.

Congressman Frank worked on the development of this legislation in order to ensure that there would be no additional reporting requirements for domestic fishermen. Rather, the bill will make changes so that the federal government makes better use of information that is already collected. Similarly, the demands on processors are minimal. They will only be required to pass on to buyers the information they already collect.

The SAFE Seafood Act will make changes to ensure that seafood sold in the United States is traceable and identifiable.

- To equalize the playing field between domestic and foreign fishermen, the same data that is already required of domestic fishermen (gear type, farmed or wild, etc.) will be required during the processing, distribution, and sale of imported seafood.

- It requires that the Secretary of Commerce (Commerce) and the Secretary of Health and Human Services (HHS) execute a memorandum of understanding to improve interagency cooperation on seafood safety between NOAA and the FDA.

- It will require Commerce and HHS to work with the Federal Trade Commission, the Department of Homeland Security, and other federal agencies to hasten seafood imports from "good actor" counties.

- It will require that inspections for seafood safety take into account seafood fraud.

- It establishes procedures for refusing shipments of unsafe seafood from foreign exporters, and establishes conditions for those exporters to recommence shipments to the U.S.

- Foreign exporters who violate federal seafood safety laws will have their names made public.

Saving Seafood is compiling a list of industry members who are willing to support this bill. If you are willing to support this effort by Congressmen Markey and Frank, please contact Tazewell Jones at Saving Seafood this afternoon, or at the very latest BEFORE 10 A.M. WEDNESDAY MORNING. He can be reached at:

Taz@SavingSeafood.org
202-595-1212 x18 phone
334–799-8215 cell