

# **Georges Bank Yellowtail Flounder TRAC Assessment Summary and Groundfish Plan Development Team Report**

**Scientific and Statistical Committee meeting**

**August 24, 2020**



New England  
Fishery Management Council

# 2020 TRAC Summary

- Combined Canada and USA catches in 2019 were 8 mt.
- The declining trend in survey biomass to low levels, despite reductions in catch to historical low amounts, indicates a poor state of the resource.
- Recent catch is low relative to the biomass estimated from the surveys but catch curve analyses indicate declining but high total mortality rates ( $Z$  above 1 for most years).
- Stock biomass is low and productivity is poor.

# 2020 TRAC Summary

- An empirical approach (based on survey catches developed during the 2014 Georges Bank Yellowtail Flounder Diagnostic and Empirical Approach Benchmark and updated during the 2017 intersession conference call) was applied to generate catch advice.
- The Transboundary Resources Assessment Committee (TRAC) recommends an upper bound for the exploitation rate of 6% for catch advice, which results in 125 mt for 2021.
- The TRAC recommends low exploitation to allow for the possibility of rebuilding.

# 2020 TRAC Summary

- For future catch advice, the TRAC suggests changing the approach for setting the quota from the empirical approach to a fixed quota. The fixed quota would remain until the average survey biomass fell outside the reference limits set by the Transboundary Management Guidance Committee (TMGC).
- There was no 2020 National Marine Fisheries Service (NMFS) spring survey due to the COVID-19 pandemic. For the sake of completeness and comparability with previous TRAC Status Reports (TSRs), a number of tables and figures that could not be updated due to this missing data are included in the Appendix.

# Catch

2019 Catch lowest in 85 years  
Discards > Landings

	note units! kilograms						
	Landings	Discards	Catch		Landings	Discards	Catch
US	2731	1601	4331	US	33%	19%	53%
Canada	185	3731	3916	Canada	2%	45%	47%
Sum	2916	5331	8247	Sum	35%	65%	100%

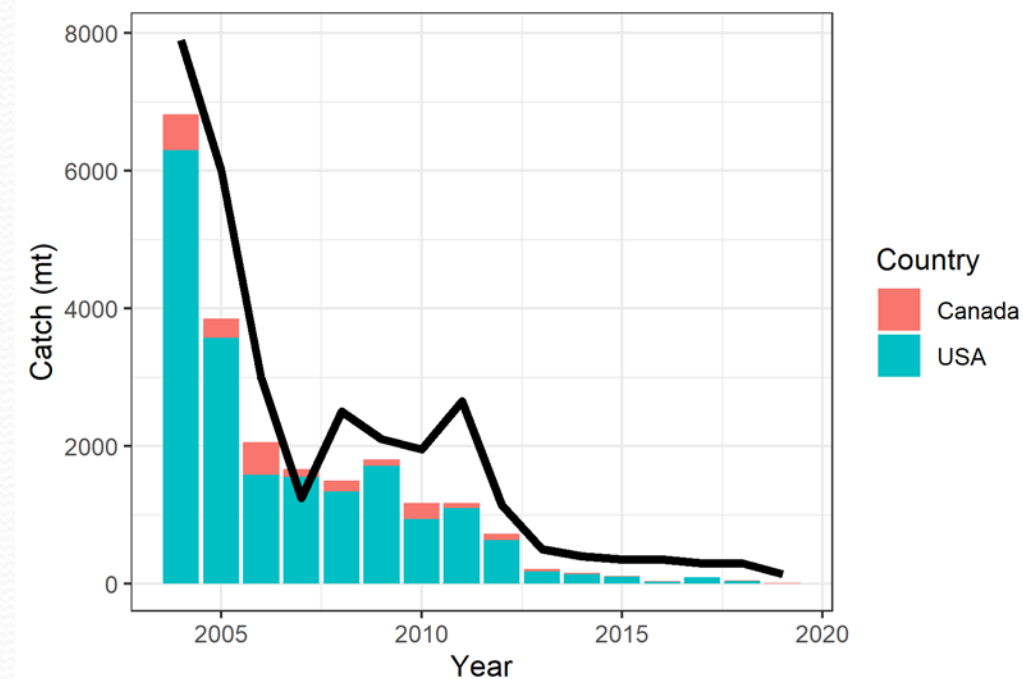
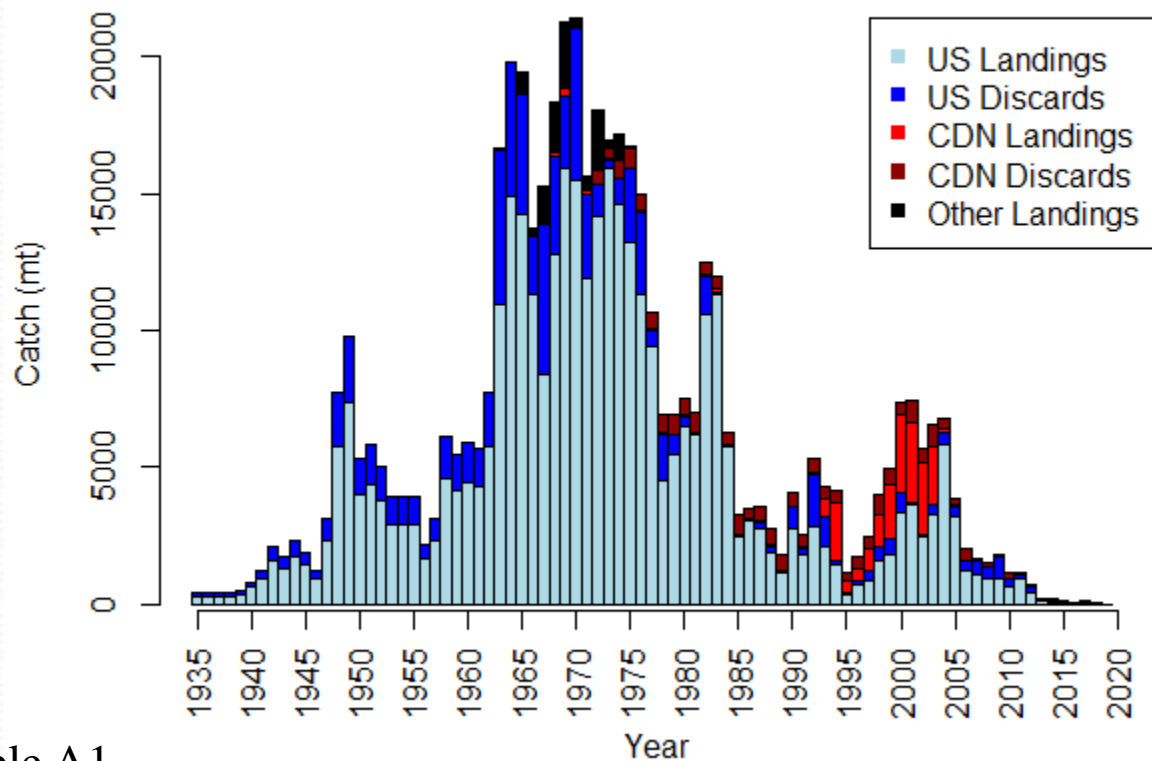
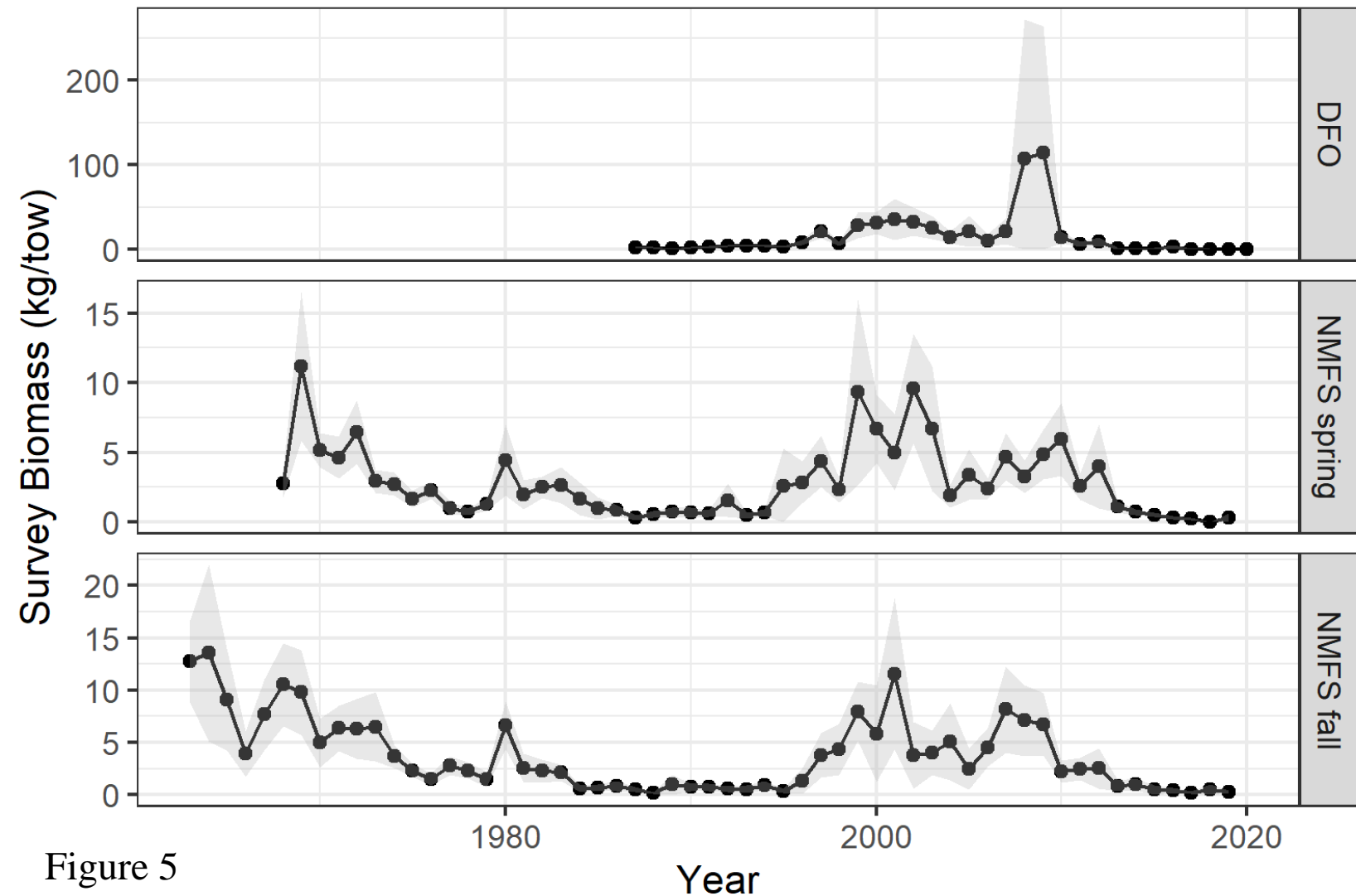


Table A1

# Catch Uncertainties

- Low catches hard to sample
- Catch and weight at age uncertain due to low catches
- No adjustments have been made to US catch of Georges Bank Yellowtail Flounder to account for catch misreporting due to lack of information
- Groundfish PDT found observer effect, no change to discard estimates due to lack of information
- Research catch not included in total removals

# Survey Biomass Time Series



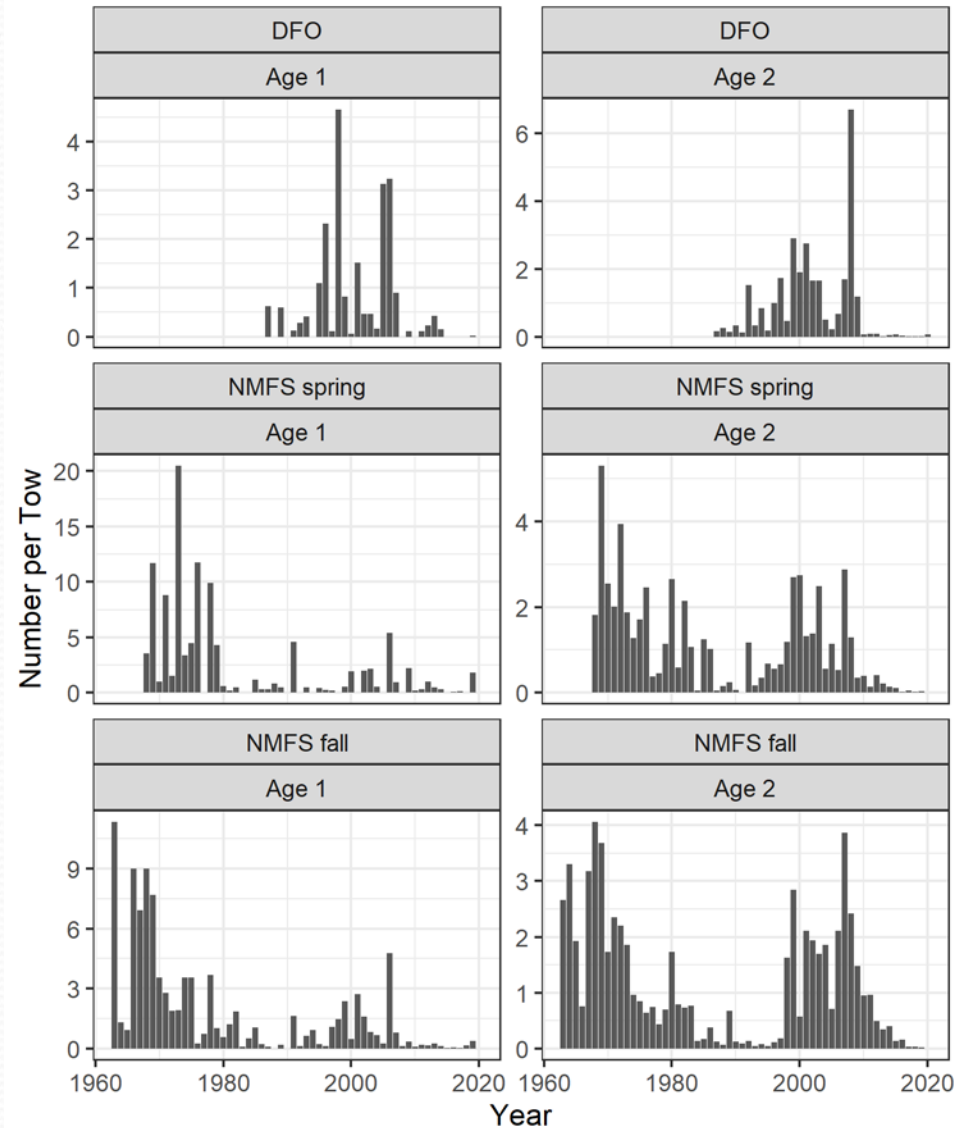
DFO 2020 2<sup>nd</sup> lowest in 34 years

NMFS spring 2020 not conducted due to Covid-19

NMFS fall 2019 3<sup>rd</sup> lowest in 57 years

Figure 5

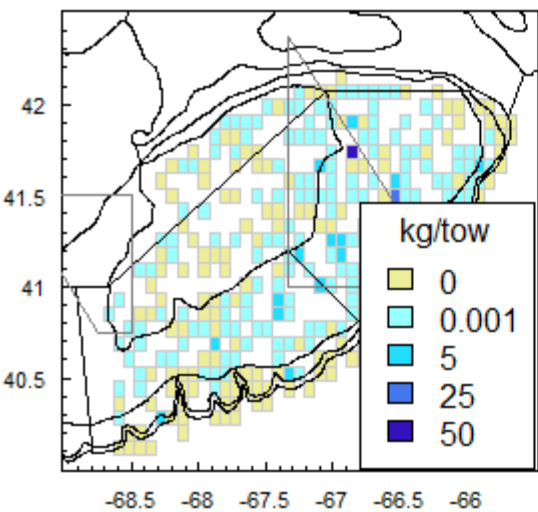
# Survey Recruitment



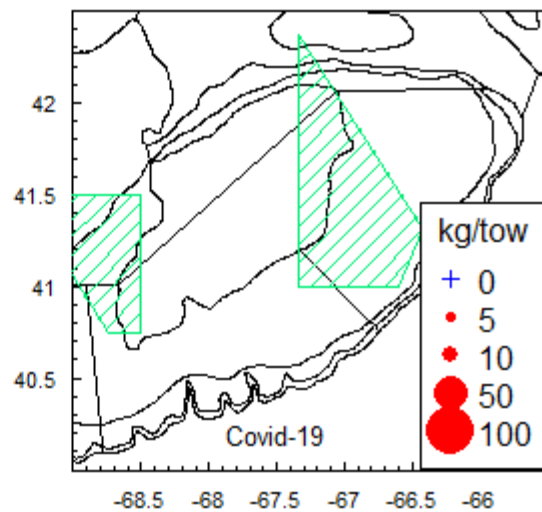


# Survey Spatially

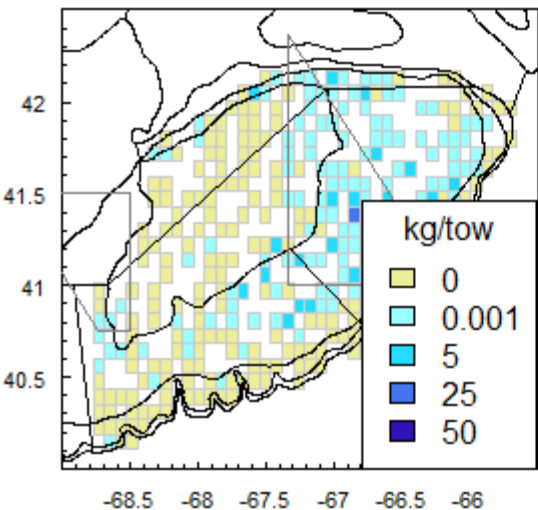
Average 2010 - 2019



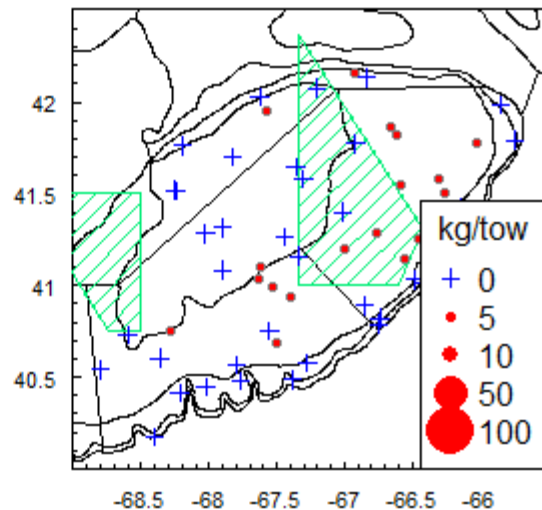
SPRING 2020



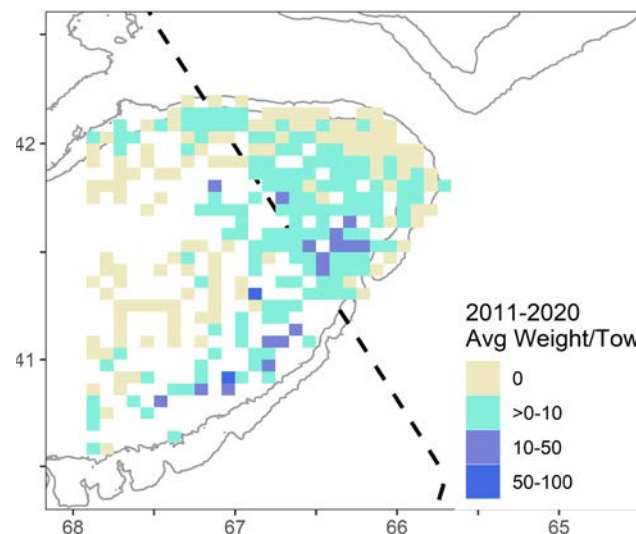
Average 2009 - 2018



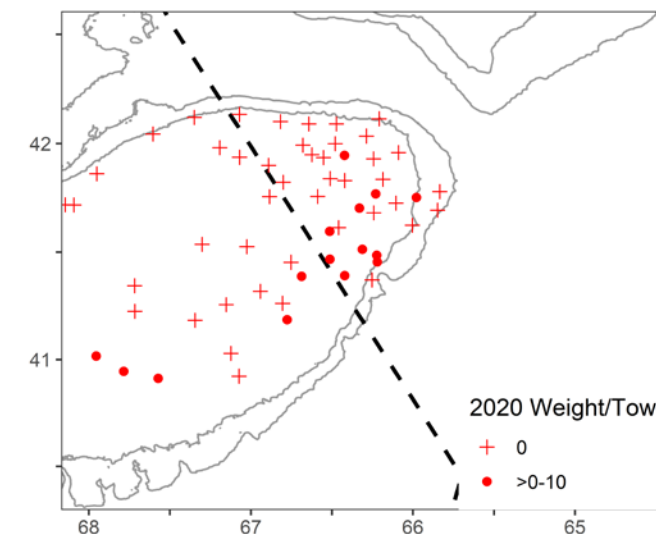
FALL 2019



Average 2010-2019



DFO 2020



# Survey Uncertainties

- Spring 2020 not available due to Covid-19
- Low catch in both surveys conducted indicates low population abundance
- CVs of survey biomass <40% (within range previously seen)
- Survey catch at age as a measure of population at age uncertain due to few fish caught
- Low catch makes interpretation of spatial distribution difficult

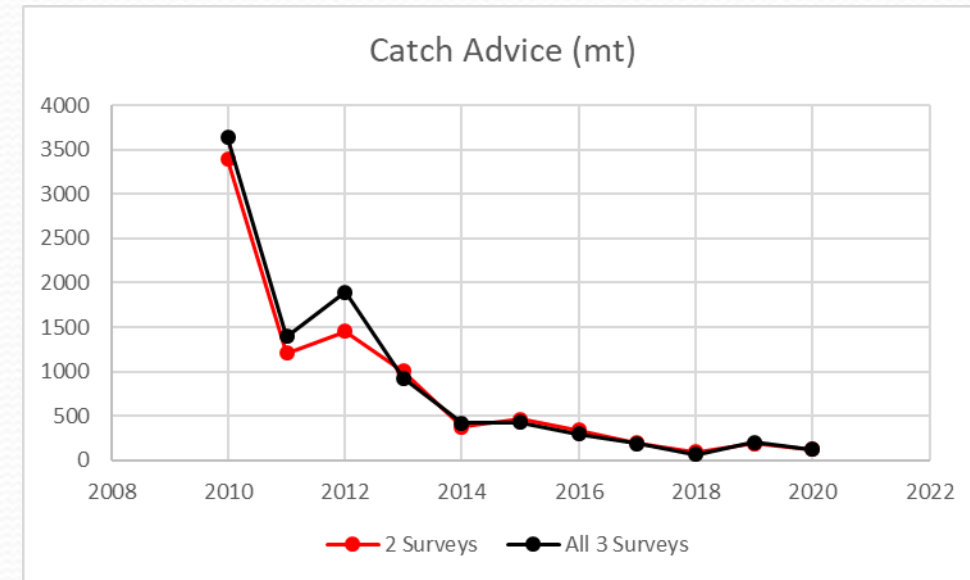
# Catch Advice Calculations

Year	Biomass (mt)			Average	Catch Advice (mt)
	DFO	Spring	Fall (year-1)		
2010	29,452	68,752	83,490	60,565	3,634
2011	12,344	29,621	27,821	23,262	1,396
2012	18,113	46,209	30,354	31,559	1,894
2013	2,249	12,766	31,199	15,404	924
2014	1,654	8,564	10,828	7,015	421
2015	2,650	5,861	12,682	7,064	424
2016	5,569	3,610	5,811	4,997	300
2017	1,104	2,819	5,432	3,118	187
2018	812	143	2,424	1,126	68
2019	182	3,735	6,047	3,322	199
2020	404	NA	3,749	2,077	125

Table 2

# NMFS Spring Dropped

Year	Biomass (mt)				Average	Catch	all 3 surve
	DFO	Spring	Fall (t-1)				
2010	29452		83490		56471	3388	3634
2011	12344		27821		20082	1205	1396
2012	18113		30354		24233	1454	1894
2013	2249		31199		16724	1003	924
2014	1654		10828		6241	374	421
2015	2650		12682		7666	460	424
2016	5569		5811		5690	341	300
2017	1104		5432		3268	196	187
2018	812		2424		1618	97	68
2019	182		6047		3115	187	199
2020	404		3749		2077	125	125



No Spring to Including Spring increased catch advice in 5 of 10 years (decreased catch advice in 5 of 10 years)  
 Average relative change across the 10 years = 1%

# 2020 TRAC Summary

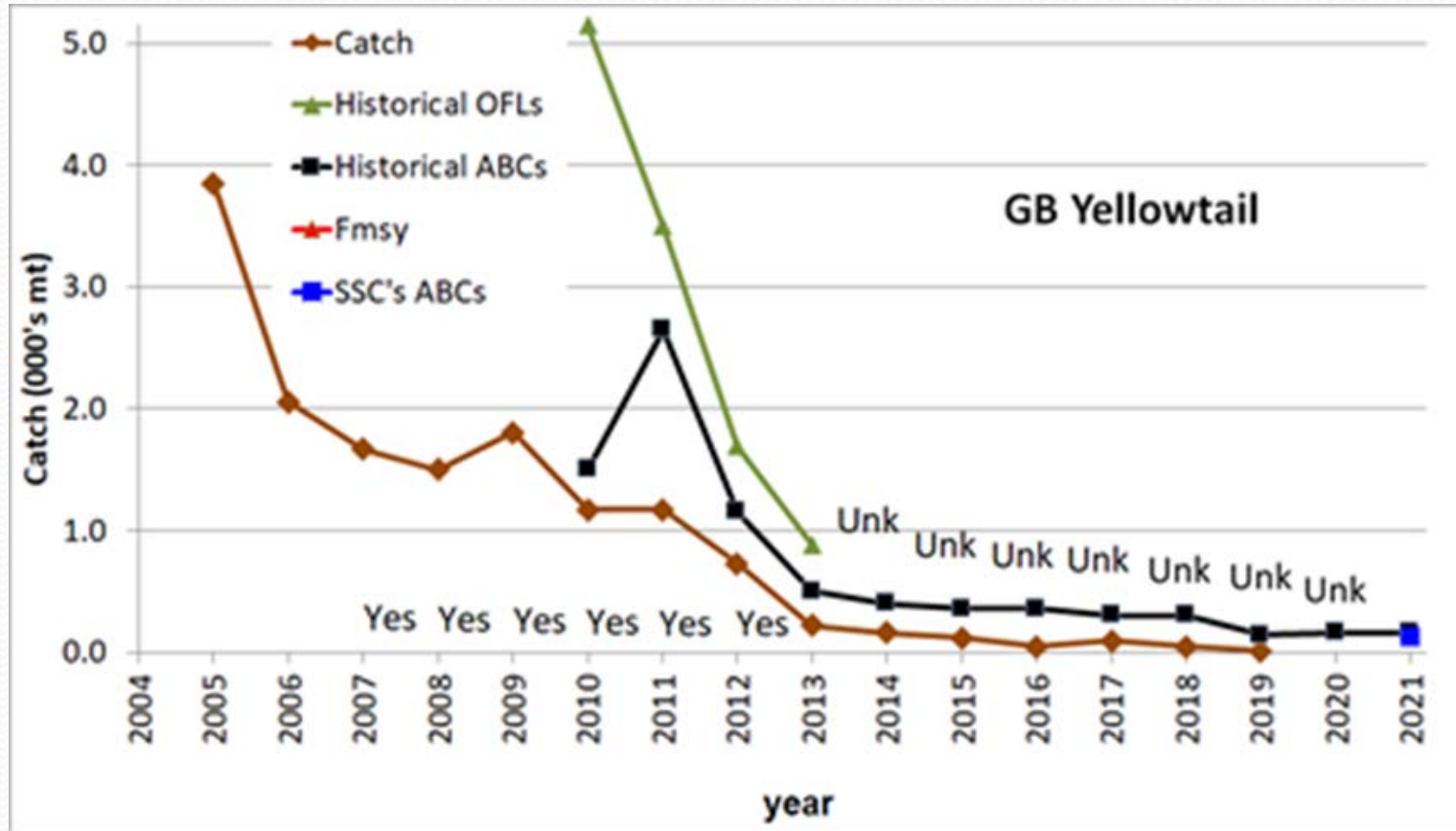
- TRAC recommends an upper bound for the exploitation rate of 6% for catch advice, which results in 125 mt for 2021.
- The TRAC recommends low exploitation to allow for the possibility of rebuilding.

# Groundfish PDT Report Summary

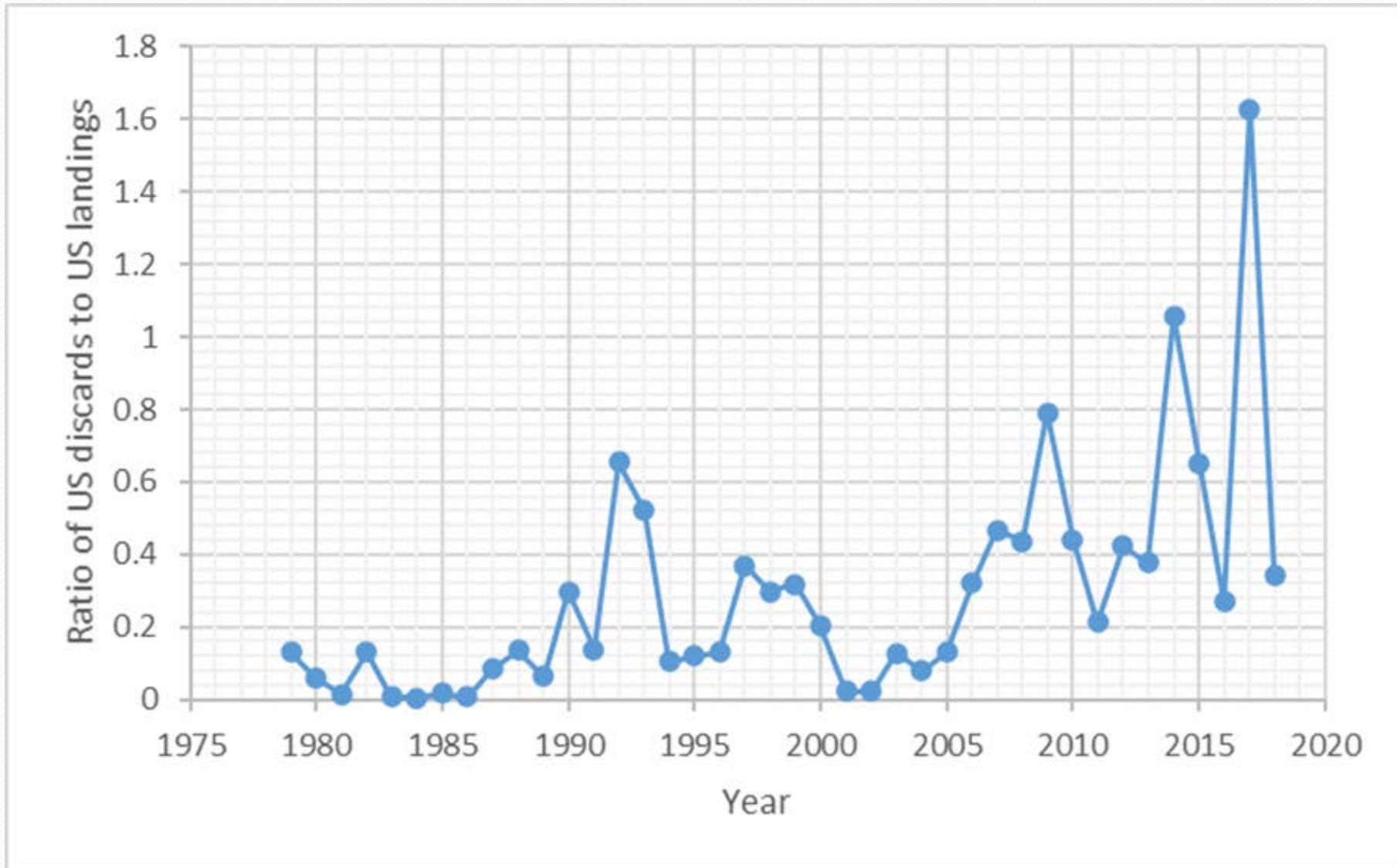
Updated fishery information:

- (1) catch performance for GB yellowtail flounder
- (2) the ratio of US discards to US landings for GB yellowtail flounder,
- (3) observed catches of GB yellowtail flounder,
- (4) in-season utilization of GB yellowtail flounder by the commercial groundfish fishery, and
- (5) summary of economic information

# Catch Performance



# Ratio of US Discards to US Landings



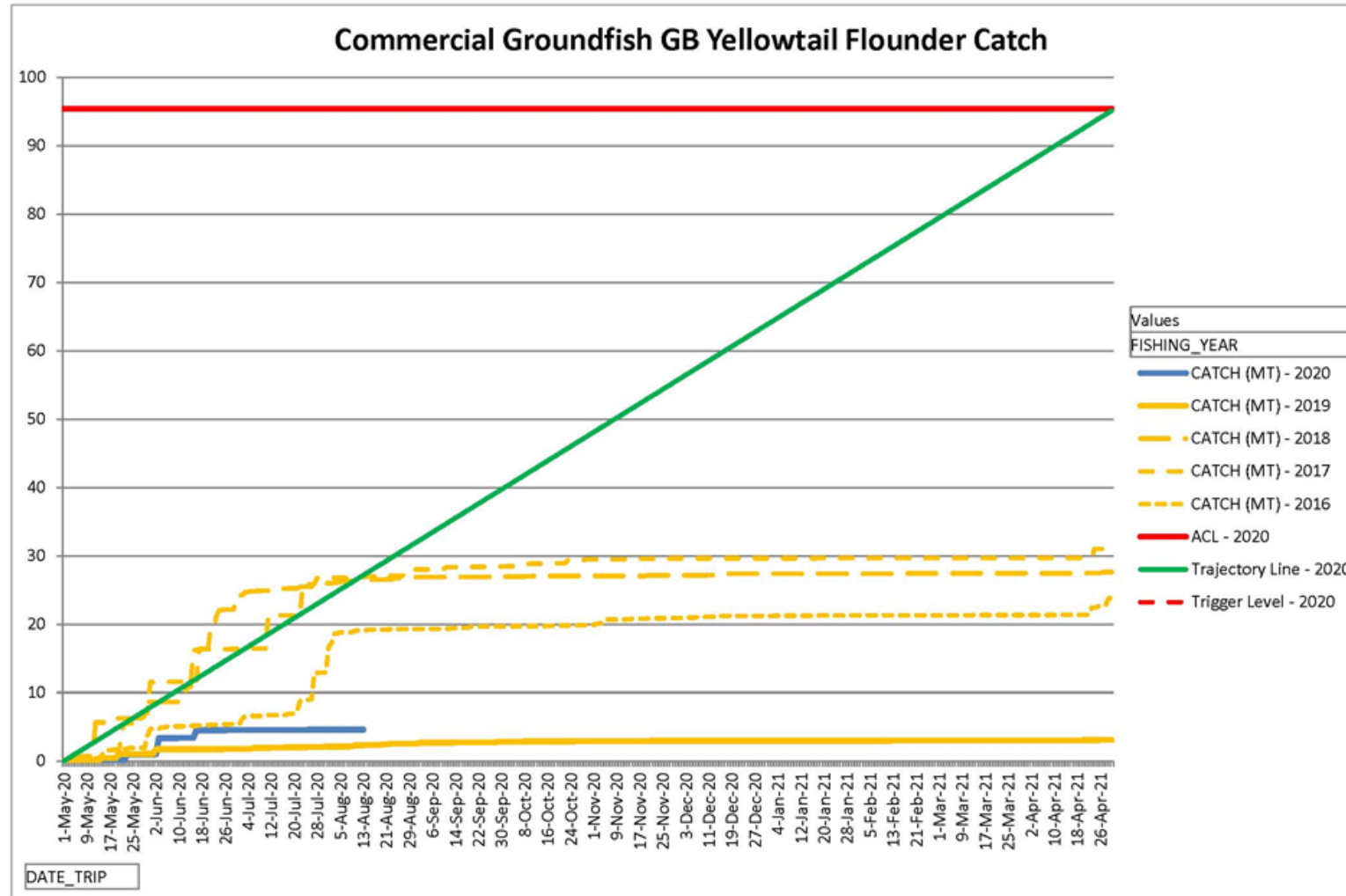


# Observed Catches of Yellowtail Flounder

	CC/GOM			GB		SNE/MA		
	513	514	521	522	525	537	539	613
<100 lbs.	43	620	140	65	8	42	46	24
100-<200 lbs.	*	68			*	*		
200-<300 lbs.	*	19			*			
<300+ lbs.		38						

- Count of observed large-mesh hauls of yellowtail flounder by haul weight (binned in 100 lb. increments) and statistical reporting areas (SRAs) for fishing year 2019.
- Data are all large-mesh bottom trawl hauls (NEGEAR=050) and are not filtered by fishery.

# In-Season Utilization Commercial Groundfish



# Economic Information – Sectors - QCM

FY	Sector sub-ACL	Catch (mt)		Utilization (%)		Gross Rev (\$mil, 2019)	
		Realized	Predicted	Realized	Predicted	Realized	Predicted
2011	1142	997.5	901.1	0.873	0.789	2.9	2.4
2012	364.1	214.8	323.3	0.59	0.888	0.7	1
2013	100	55.8	99.6	0.558	0.996	0.2	0.3
2014	251.5	61.2	161.1	0.243	0.641	0.2	0.6
2015	192.3	38.4	52.5	0.2	0.273	0.1	0.2
2016	207	23.9	21.5	0.116	0.104	0.1	0.1
2017	119.8	31	19.4	0.259	0.162	0.1	0.1
2018	167	27.6	36.8	0.166	0.22	0.1	0.2
2019	83	3.1	37.3	0.037	0.449	0.1	0.1

**GB  
Yellowtail  
Flounder**

# Other US Fisheries with Catch Limits

- Small-mesh (mainly squid and whiting) fisheries
- Scallop fishery

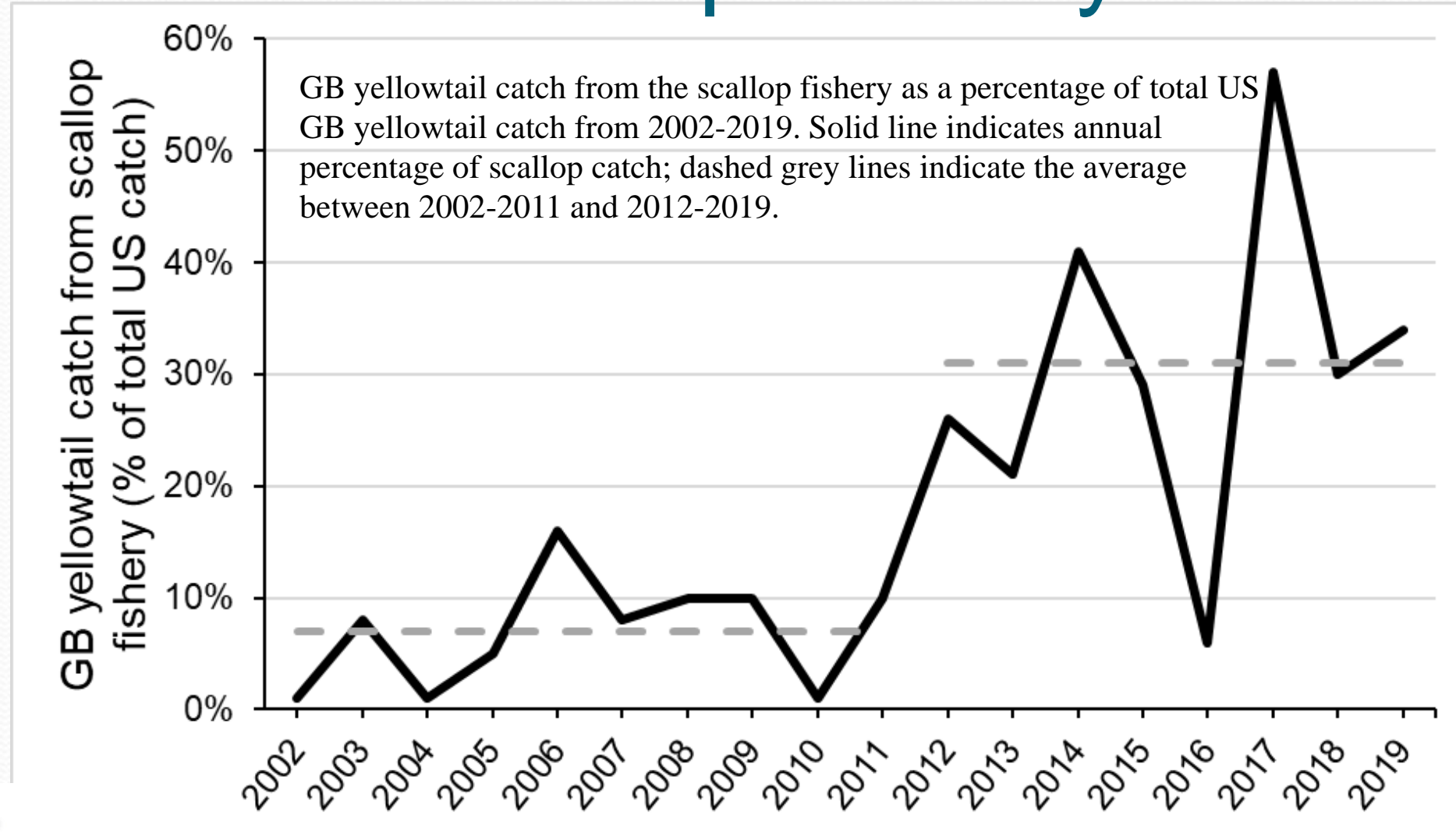
# Small-Mesh Fisheries

	Small-mesh fisheries sub-ACL (mt)	Small-mesh fisheries (mt)	Percent small-mesh fisheries Caught (%)
FY2013	4	2.5	63.7%
FY2014	6.1	1.1	18.1%
FY2015	5	0.1	1.0%
FY2016	5	4.8	95.2%
FY2017	4	0.4	9.7%
FY2018	4	0.1	2.5%
FY2019*	2	0.0	1.4%
FY2020	2		

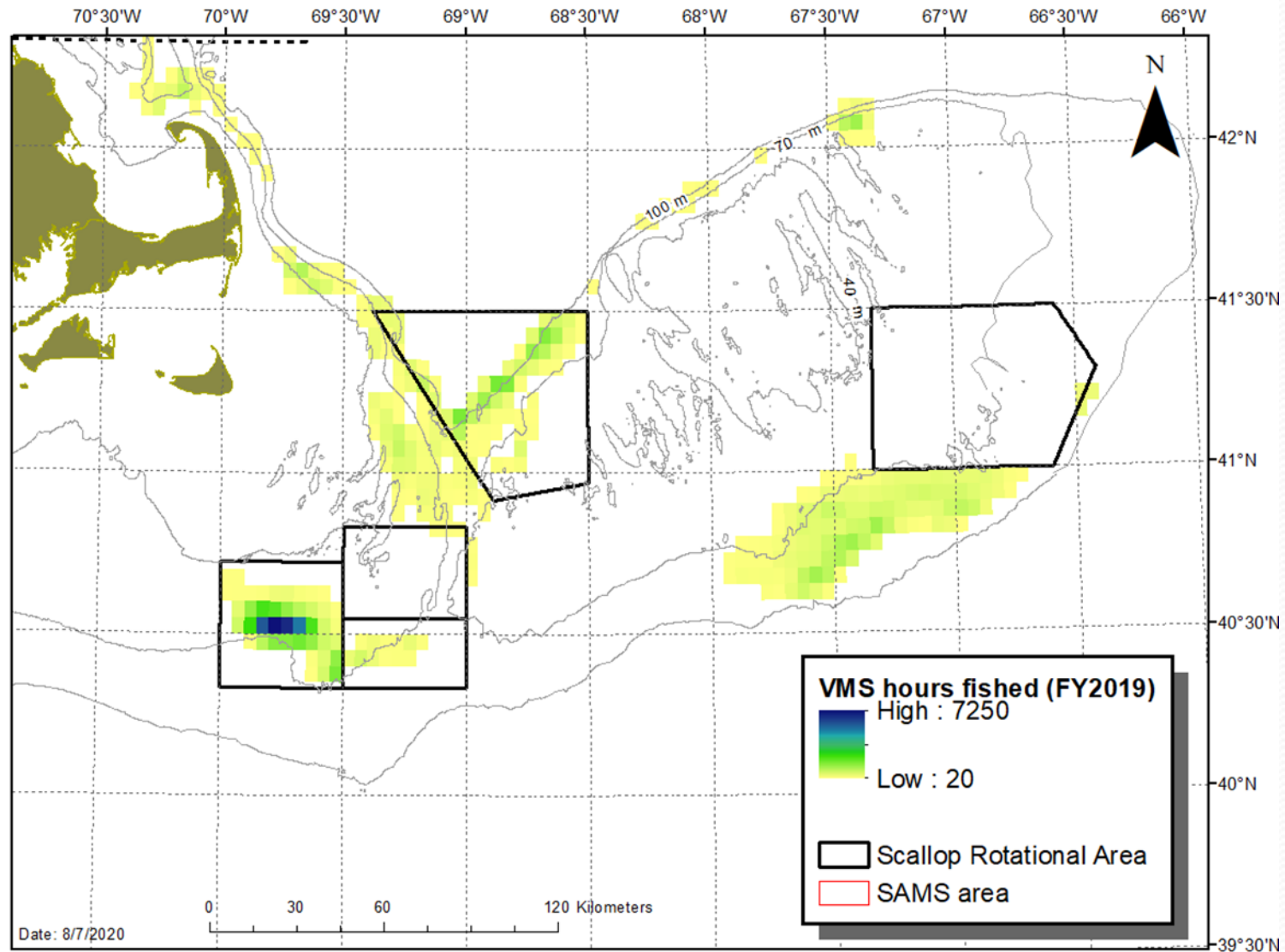
# Sea Scallop Fishery – Scallop PDT Report

- Impacts of COVID-19 on Specification Process and Data
- Scallop Activities in Closed Area II (CAII) Access Area
- GB Yellowtail Flounder in the Scallop Fishery
- 2019 Scallop Survey Information and FY2020 Spatial Management
- Scallop Fishery Allocations and In-Season Transfers to the Groundfish Fishery
- CAII Fishery Performance
- Accountability Measures
- Impacts of Allocation

# Scallop Fishery



# Scallop Fishery – FY2019





# GF PDT Discussion and Recommendations

- The TRAC recommended an upper bound for the exploitation rate of 6% for catch advice, which results in 125 mt for 2021. The TRAC also recommends setting the exploitation rate low to allow for the possibility of rebuilding. Below is an excerpt of Table A6 in the 2020 TSR (pp. 21), showing corresponding catch advice for a range of exploitation rates of 2% to 6%.

<u>Exploitation Rate</u>	<u>Catch Advice (mt)</u>
2%	42
4%	83
6%	125

# Overfishing Limit

- OFL/ABC- The PDT suggested the SSC discuss the basis for determining the ABC that will prevent overfishing if the OFL remains unknown
- OFL –
  - The 2020 TRAC's recommendation to possibly set future quota at a fixed amount (rather than an exploitation rate), once again raises the question of determining OFL.
  - The PDT discussed that such an evaluation of new SDCs may be most appropriate during a stock assessment process, noting that NMFS has convened a stock assessment working group focused on index-based methods and control rules.
  - This working group is expected to create guidelines for setting biological reference points (BRP) for stocks assessed with index-based approaches.
  - A research track assessment will use simulation approaches to explore BRPs, among other topics, with a peer review expected in fall of 2020.
  - This may result in guidance on setting SDCs and relevant catch limits in cases when an empirical assessment cannot provide numerical estimates of traditional reference points.

# Acceptable Biological Catch

- The PDT confirms the TRAC recommendation as an approach to determine ABC, although the TRAC recommendation could also be used to set an OFL, rather than the ABC.
- Using the TRAC's recommendation for 2021 would take into consideration the poor stock status of GB yellowtail flounder and allow for fisheries with GB yellowtail flounder catch to operate while limiting catches comparable to recent years with low quotas.

# For Today

Recommend OFLs and ABCs for Fishing Years 2021 and 2022 for Georges Bank yellowtail flounder.

# Additional Slides

# Historical Exploitation Rates

Year	Quota (mt)	Catch (mt)	Quota/Avg	Catch/Avg	Model Type
2010	1,956	1,170	3%	2%	VPA
2011	2,650	1,171	11%	5%	VPA
2012	1,150	725	4%	2%	VPA
2013	500	218	3%	1%	VPA
2014	400	159	6%	2%	VPA
2015	354	118	5%	2%	Empirical
2016	354	44	7%	1%	Empirical
2017	300	95	10%	3%	Empirical
2018	300	45	27%	4%	Empirical
2019	140	8	4%	0%	Empirical
2020	162		8%		Empirical
Mean	751	375	8% <sup>1</sup>	2%	

<sup>1</sup> The average Quota/Avg for years 2010-2017 is 6%.

# Sampling

- US Landings (2,731 kg)
  - 2 samples (1 large, 1 small) total of 137 lengths, 58 ages
- Canadian Landings (185 kg)
  - No samples, assumed US landings catch at age proportions and weight at age
- US Discards (1,601 kg)
  - Almost entirely from Scallop Fishery
  - 50 trips observed, 43% CV
  - 88 lengths, ages borrowed from surveys and catch
- Canadian Discards (3,731 kg)
  - 20 trips observed
  - Many lengths, ages borrowed from surveys and catch

# Catch and Weight at Age

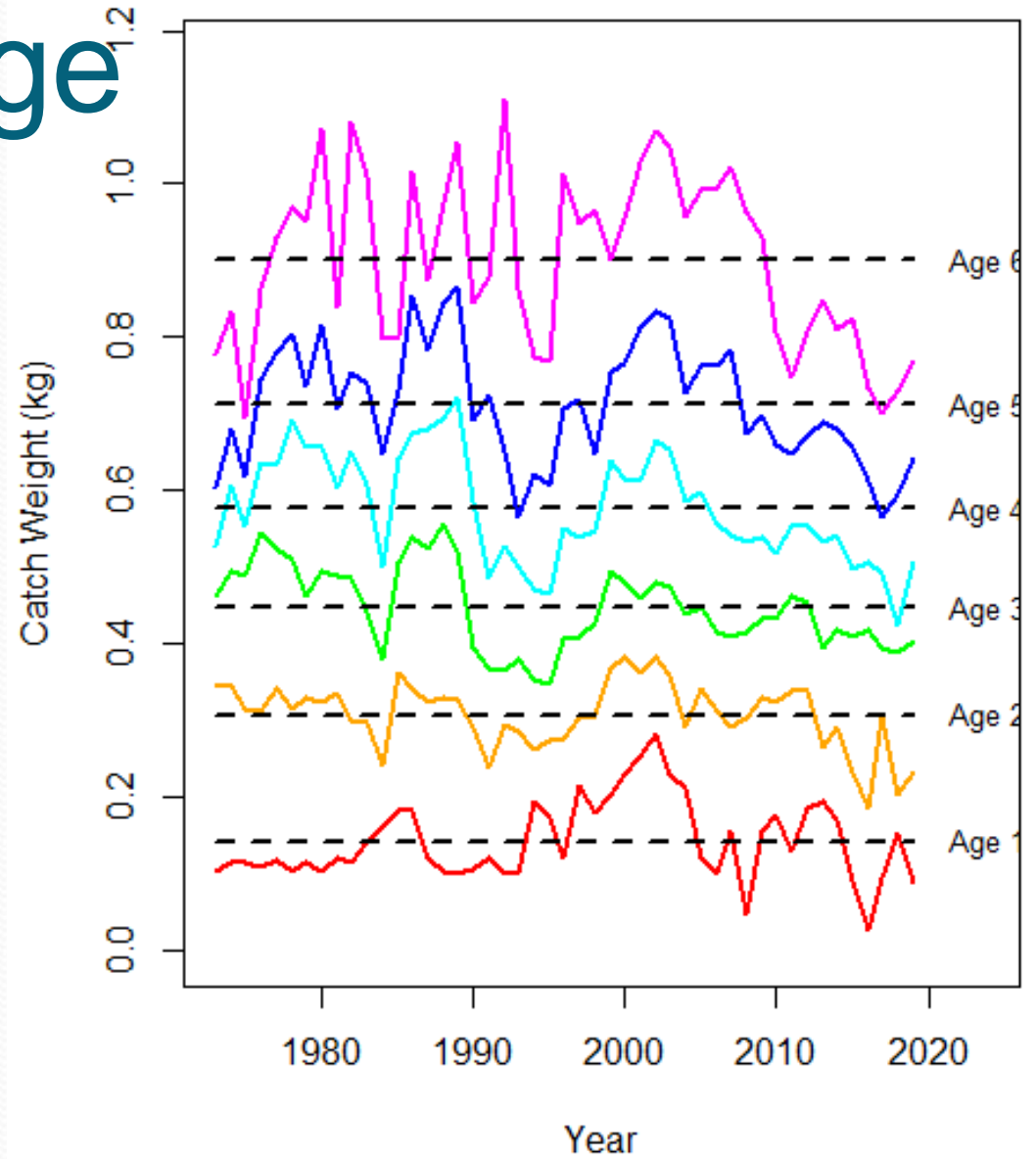
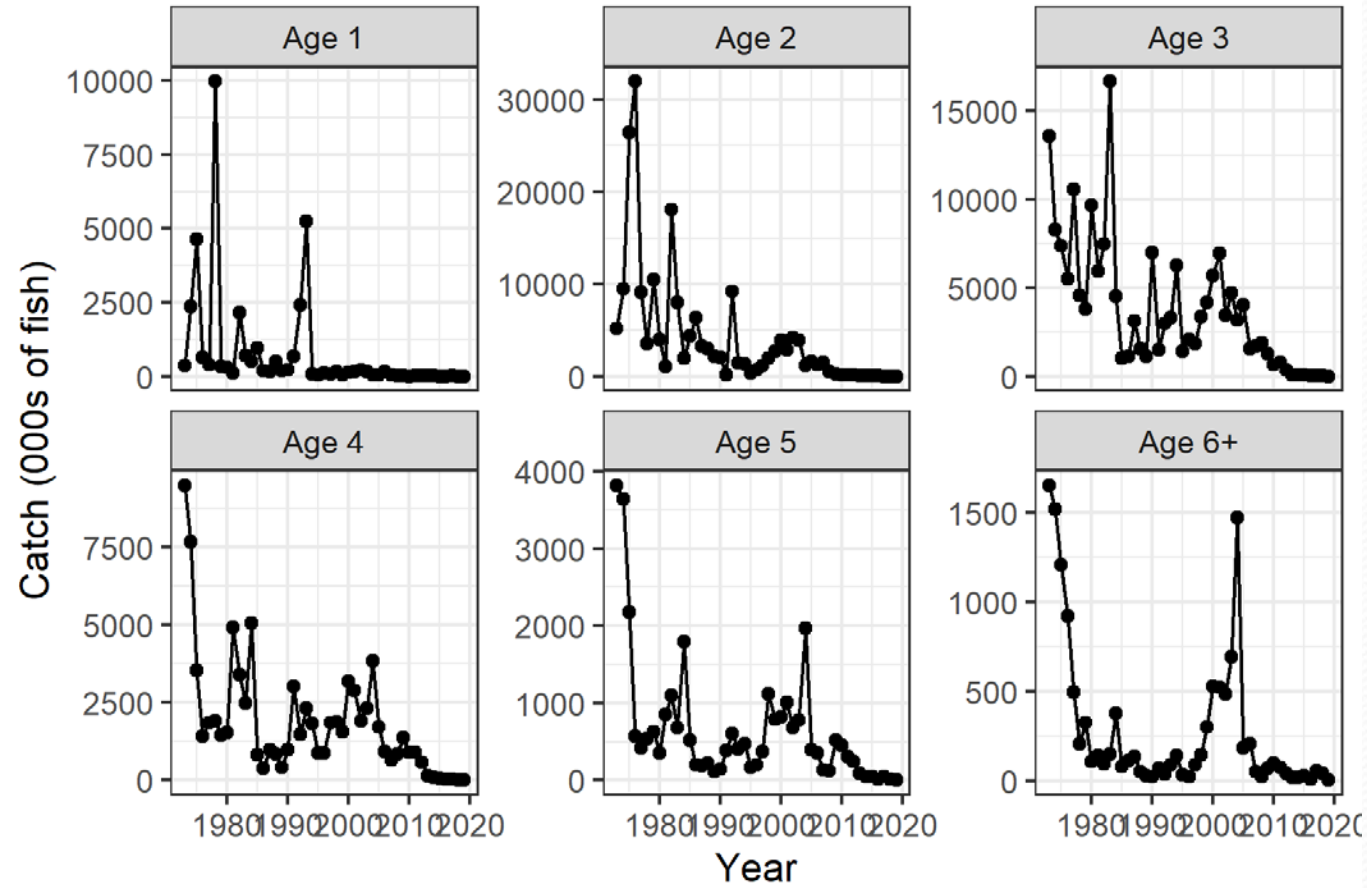


Figure A1, Table A2



# Surveys

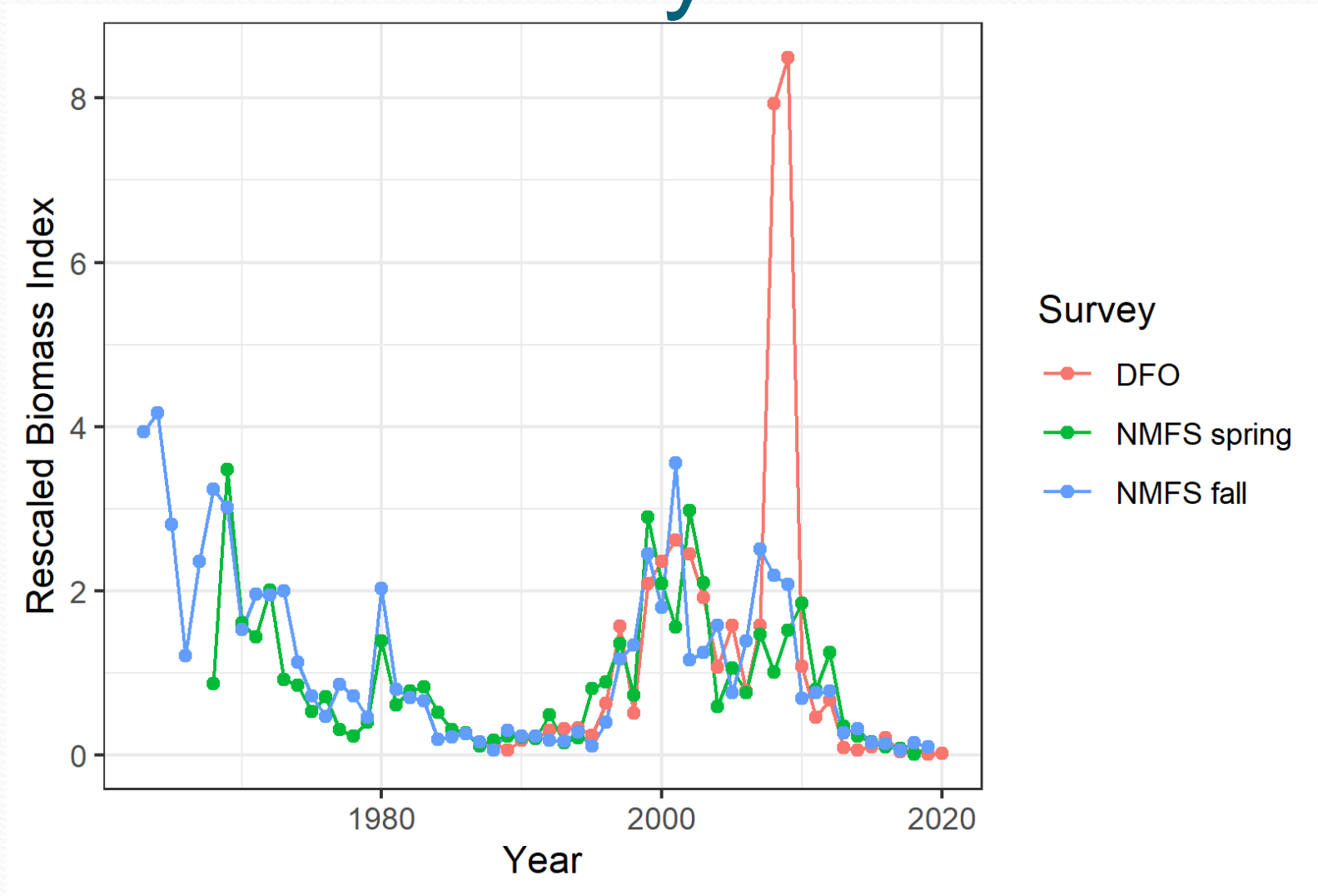
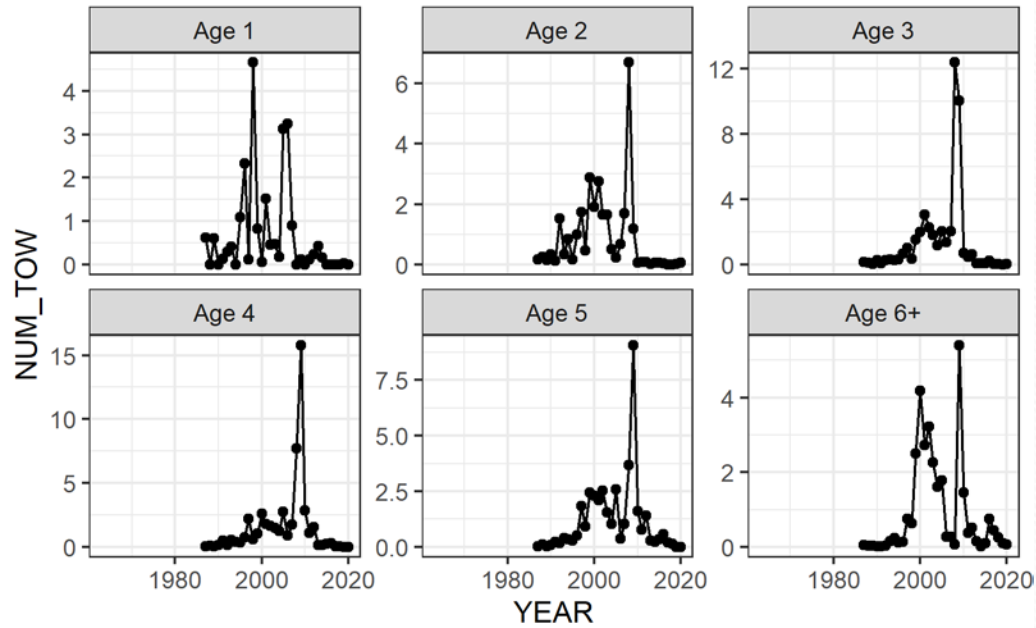


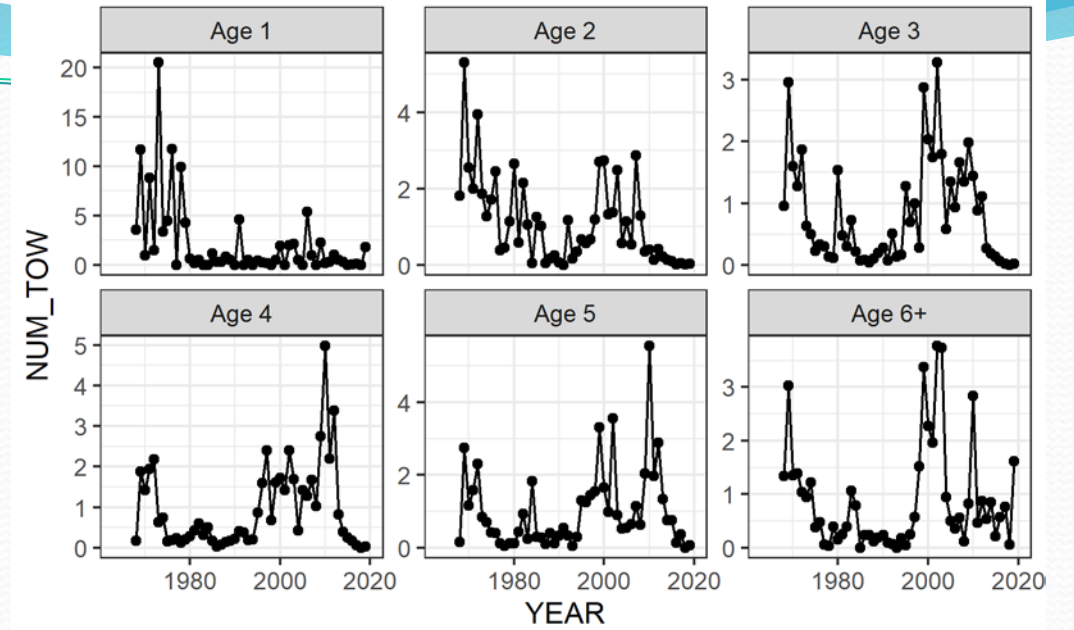
Figure A2

# Survey Catch at Age

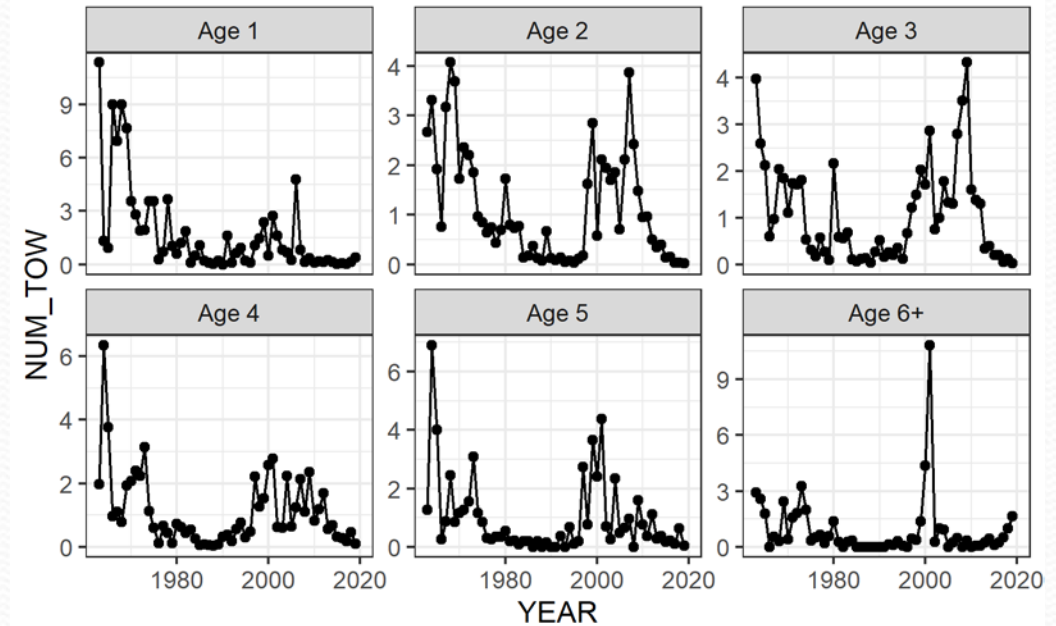
DFO



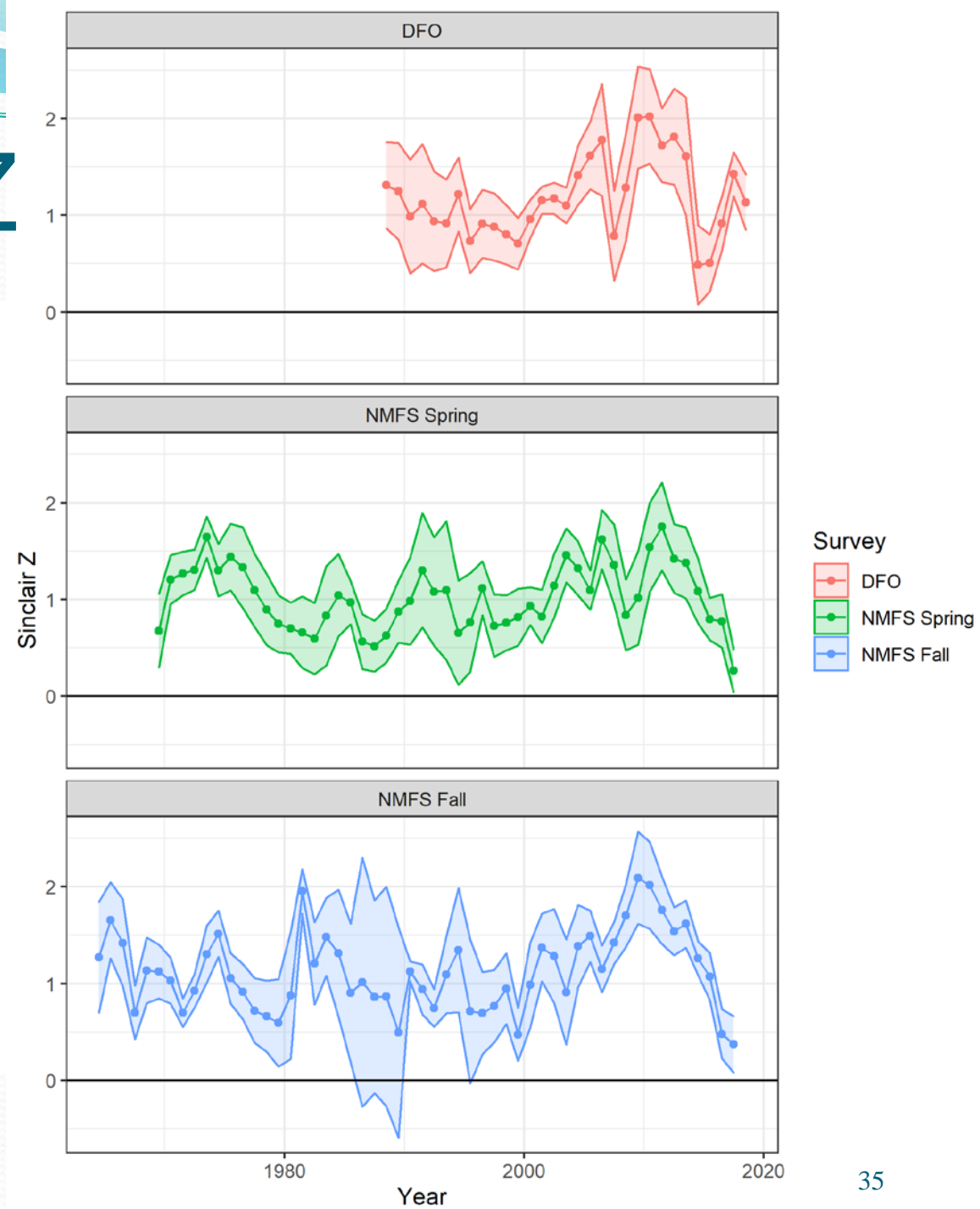
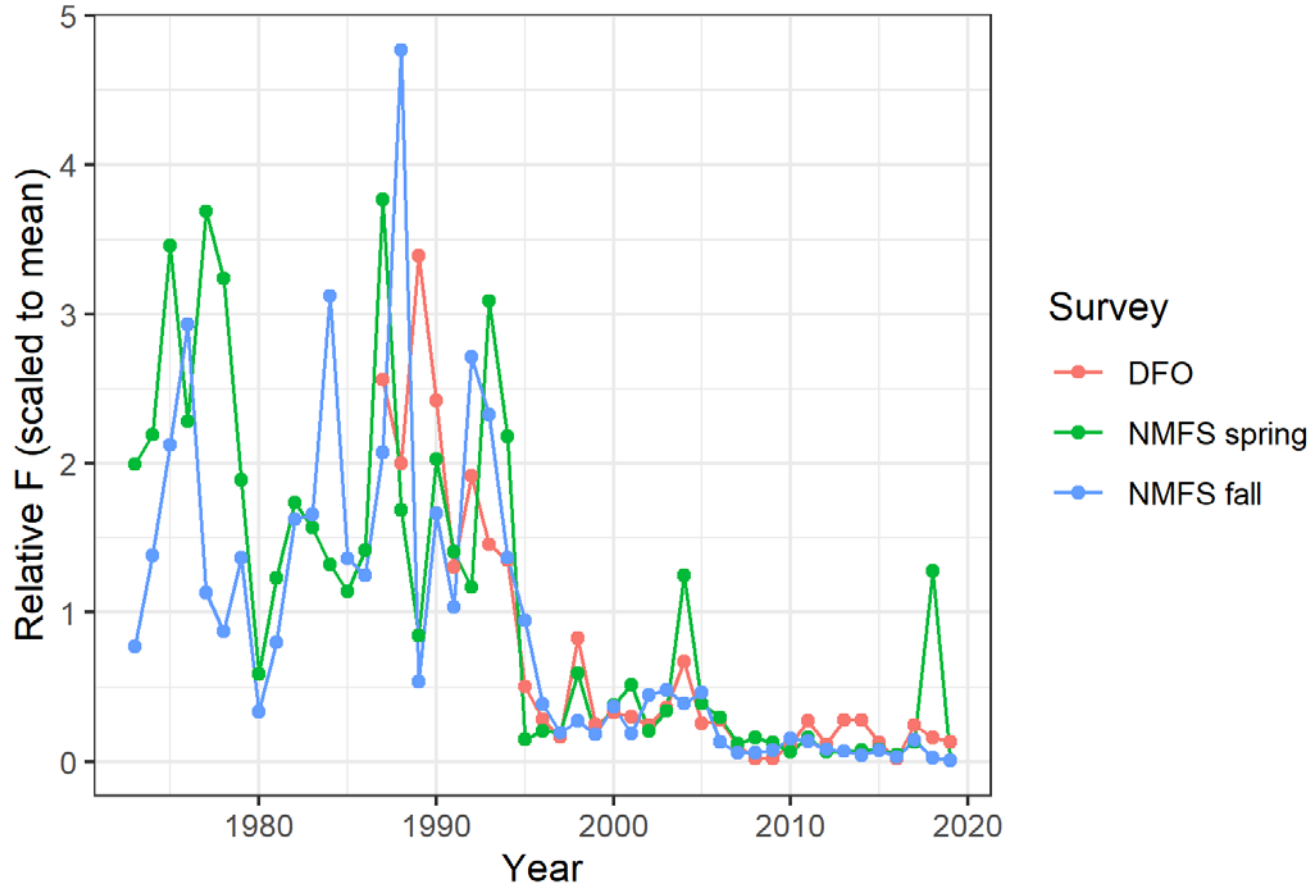
NMFS spring



NMFS fall



# Relative F and Survey Z



Figures 2, 3

# Caveat

< 0.1 shaded

DFO											
Age	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
3	9.392	6.093	8.243	0.831	0.741	1.112	3.151	0.185	0.263	0.029	0.266
4	20.943	8.205	11.423	1.254	0.960	1.659	2.104	0.435	0.194	0.045	0.059
5	3.533	1.701	3.096	0.604	0.471	0.747	1.257	0.437	0.315	0.005	0.025
6	1.076	0.250	0.376	0.100	0.018	0.078	0.452	0.195	0.137	0.055	0.006
7	0.203	0.077	0.077	0.040	0.000	0.015	0.171	0.159	0.067	0.037	0.019
8	0.000	0.000	0.000	0.000	0.000	0.000	0.034	0.034	0.019	0.000	0.027
NMFS spring											
Age	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
3	5.412	3.331	4.178	1.006	0.679	0.513	0.233	0.070	0.000	0.086	NA
4	8.451	3.735	5.745	1.401	0.682	0.420	0.283	0.109	0.000	0.060	NA
5	2.721	0.964	1.411	0.657	0.367	0.368	0.072	0.180	0.000	0.038	NA
6	0.553	0.095	0.188	0.111	0.144	0.040	0.121	0.098	0.000	0.132	NA
7	0.070	0.013	0.013	0.013	0.011	0.000	0.013	0.057	0.000	0.153	NA
8	0.032	0.000	0.000	0.000	0.041	0.010	0.000	0.022	0.013	0.051	NA
NMFS fall											
Age	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
3	4.507	3.897	3.658	0.940	1.123	0.589	0.553	0.142	0.344	0.056	
4	0.781	1.106	1.586	0.537	0.647	0.303	0.258	0.172	0.438	0.084	
5	0.298	0.145	0.441	0.116	0.146	0.069	0.085	0.042	0.247	0.020	
6	0.000	0.010	0.014	0.044	0.062	0.020	0.034	0.055	0.116	0.134	
7	0.000	0.000	0.000	0.000	0.012	0.000	0.010	0.041	0.032	0.127	
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030	0.027	