Northwest Atlantic Fisheries Organization

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National Research Report of Japan (2019)

National Research Institute of Far Seas Fisheries (NRIFSF)
Shimizu, Shizuoka, Japan

Contents

1. INTRODUCTION

Japan joined NAFO in 1980 and had conducted fishing operations continuously for 29 years (1980-2008). After 2009, fishing operations stopped for 7 years (2009-2015) due to various reasons, i.e., socio-economics problems of fishing companies, Tsunami disasters (2011) and others. Fishing operations resumed in 2016 with one otter trawl fishing vessel and continued to now (2019) (4th year after the resumption).

This document is National Research Report (Japan), one of a number of requests by SC and NAFO Secretariat (Table 1). Table 1 summarizes progress of these requests as reference.

Table 1 Summary of requests by SC and the Secretariat and responses by Japan (as of May 9, 2019)

Information requested	NAFO circulation No.	Deadline	Response
• Environmental data	NAFO/19-017	May 31, 2019	No data available
• STATLANT 21A	NAFO/19-037	May 1, 2019	Submitted by Fisheries Agency of JAPAN (April 26, 2019)
• National Research Report		May 10, 2019	This document
• Planned Surveys for 2019 and Early 2020			No surveys planned
• Lists of Biological Sampling Data for 2018			Figs 7-9, page 13-15 (this document)
• List of Tag Releases in 2018 and early 2019			None
• Information on research vessel surveys on a stock-by-stock basis			No research vessel surveys
• STATLANT 21B		Aug 31, 2019	To be submitted by Fisheries Agency of JAPAN soon.

2. DATA (1980-2018)

Three data sources used for this National Research Report of Japan are 'STATLANT21A (1980-2018)', 'STATLANT21B (1980-2018)' and 'Japanese Observer data (2016-2018)', which were officially provided by Fisheries Agency of JAPAN.

3. OVERVIEWS (NAFO CA) (1980-2018)

Before describing subarea-based information, the global situation (1980-2018) since Japan joined NAFO in 1980, is reviewed.

3.1 Gear types

Table 2 shows gear types used in operations by year based on STATANL 21 available in the NAFO database downloaded from the NAFO homepage (April 2018). Yellow markers indicated gear types used, but numbers of boats are unknown. Only the numbers of bottom otter trawlers operated are available, which were obtained from Ms Jana Aker (NAFO Fisheries Information Administrator) (January 2019) and Fisheries Agency of Japan (February 2019). However, numbers are unknown for nine years marked orange. As the numbers of boats operated by gear type are the fundamental information and important, we plan to investigate in the future.

Table 2 Gear types used in fishing operations (1980-2018)

Gear types used in fishing operations by Japan (1980-2018) (column [B]). Yellow makers indicate that at lease one vessel used the correponding gear, but actual number of gears (boats) are unknown except bottom otter trawl in column [A]									
NAFO gear code [STATALNT21B]		8 or 10	9	12	15	49	51	56	70
year	[A] (*)	[B] gear type (STATLAN21B)							
	No of bottom otter trawl operated	Bottom otter trawl (charters)	Midwater trawl	Bottom otter trawl	Midwater trawl (stern)	Longlines (charters)	Set lines	Mechanized squid jigger	Dredge (charters)
1980	17								
1981	?								
1982	?								
1983	9								
1984	?								
1985	?								
1986	15								
1987	?								
1988	?								
1989	21								
1990	?								
1991	?								
1992	?								
1993	2								
1994	2								
1995	2								
1996	2								
1997	2								
1998	2								
1999	2								
2000	2								
2001	2								
2002	2								
2003	2								
2004	1								
2005	1								
2006	1	(**)							
2007	1								
2008	1								
2009	No operations								
2010									
2011									
2012									
2013									
2014									
2015									
2016	1								
2017	1								
2018	1								
Note (*) Sources : NAFO Secretariat (1980, 1983, 1986 and 1989) and Fisheries Agency of Japan (1993-2018) (? : mumbers are unkown).									
Note (**) code 10 : Bottom otter trawl (side or stern not specified) is included.									

(1) Data source: STATLANT21A based on the official statistics provided by Fisheries Agency of Japan.
(2) Japan jointed NAFO in 1980.
(3) Majority gear is the bottom otter trawl.
(4) Fishing vessel operated in recent years (2016-2019) is described in Annex A.

2.2 Catch by subarea (Table 3 and Map 1)

Table 3 Annual catch by sub-area (tons) (all species and gears combined)(1980-2018)

Year	Sub area							Total
	0	1	2	3	4	5	6	
1980				2,223	18,683	4,652	5,850	31,408
1981				3,191	6,556	3,035	7,795	20,577
1982				6,479	1,416	1,853	5,204	14,952
1983				410	1,360	1,335	1,190	4,295
1984		802	1,221	3,667	2,094	718	1,548	10,050
1985		1,680	111	4,983	1,161	103	379	8,417
1986		2,079	1,546	6,077	1,845	79	229	11,855
1987		1,765	1,705	5,467	1,651			10,588
1988		2,045	1,463	5,085	1,041			9,634
1989		1,428	531	6,546	830			9,335
1990	124	1,189	1,745	6,797	2,182			12,037
1991	235	794	1,774	3,009	1,622	45		7,479
1992	386	3,011	968	5,715	763			10,843
1993	270	1,284	579	3,863				5,996
1994	674	874		1,822				3,370
1995	1,085	376		2,872				4,333
1996	522		28	3,333				3,883
1997				2,565			7	2,572
1998				3,109				3,109
1999				3,112				3,112
2000				2,941				2,941
2001				3,627				3,627
2002				3,389				3,389
2003				3,216				3,216
2004				1,948				1,948
2005				1,996				1,996
2006				1,901				1,901
2007				2,011				2,011
2008				1,972				1,972
2009	No operations							
2010								
2011								
2012								
2013								
2014								
2015								
2016				2,409				2,409
2017				2,595				2,595
2018				2,908				2,908

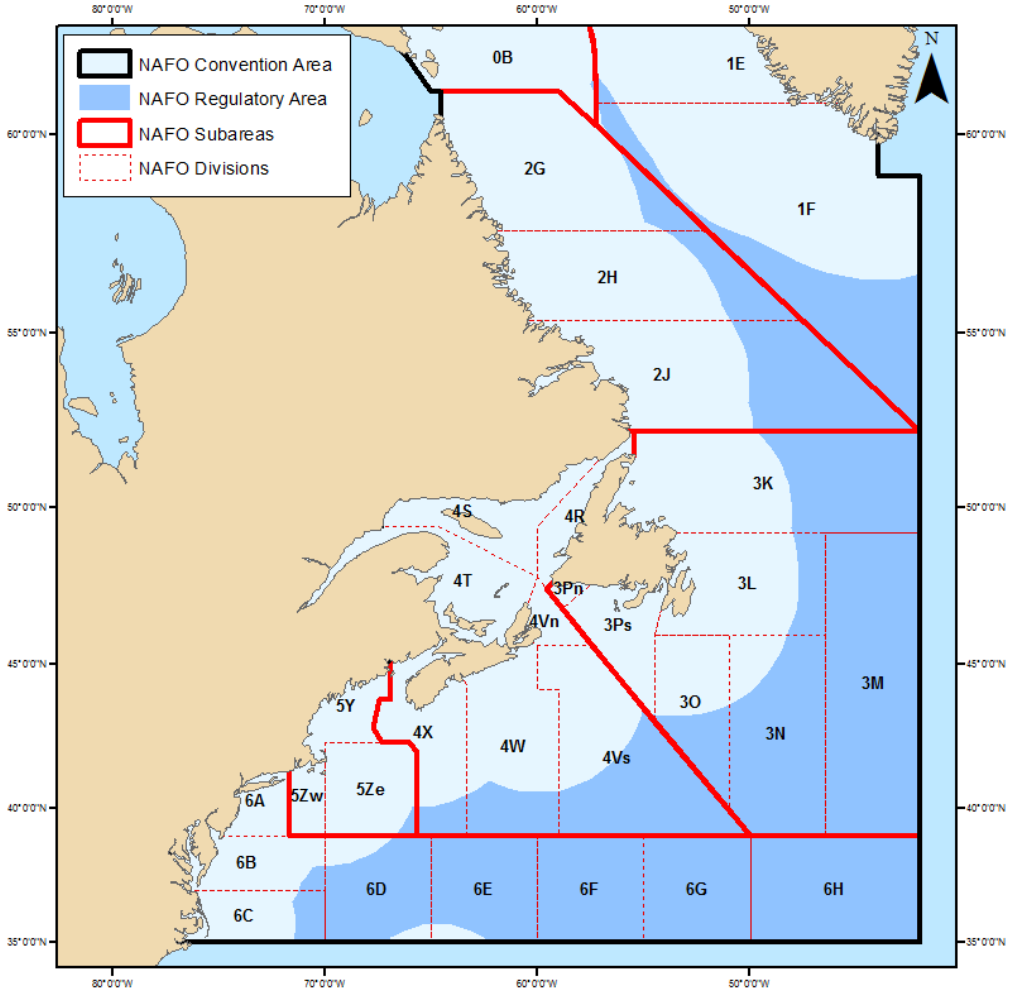
(Note) Blank means catch (tons) < 0.5 (including 0 catch) or no operations

Additional Note:

(1) Data source: STATLANT21A based on the official statistics provided by Fisheries Agency of Japan.

(2) Japan jointed NAFO in 1980.

(3) Majority gear is the bottom otter trawl.

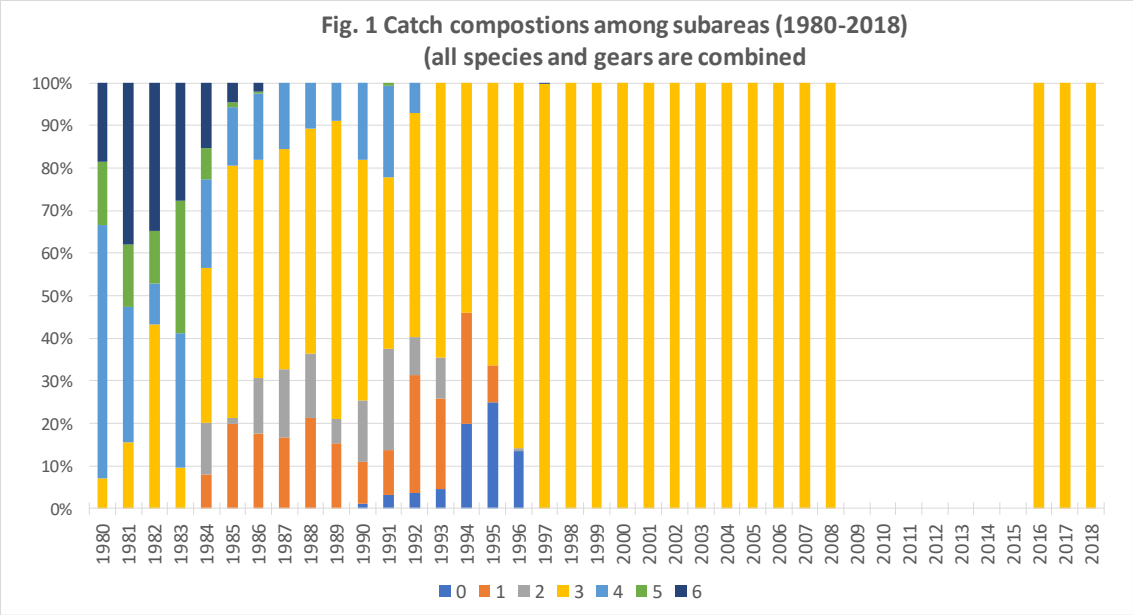


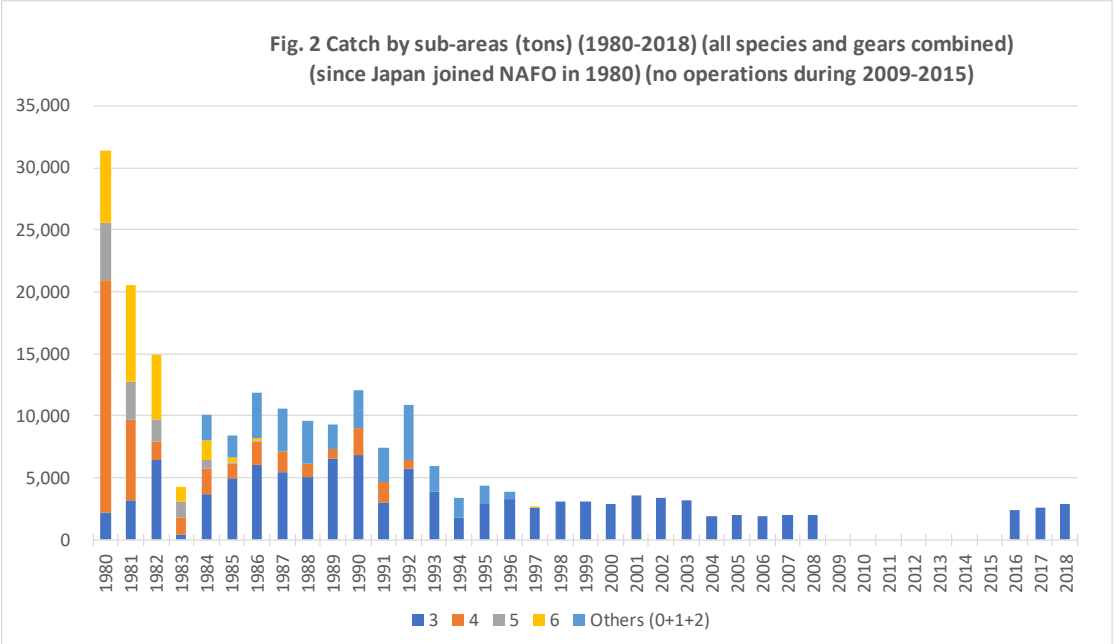
MAP 1. Map of NAFO CA highlighted subareas and Divisions.

Fig. 1 shows catch compositions among subareas (all species and gears combined but the majority gear is bottom otter trawler as indicated in Table 1). Japan operated in all of seven subareas (0-6) and subarea 3 was the major fishing ground during 1980-1996. From 1997 to now, subarea 3 is the only fishing ground for Japan.

Fig. 2 shows catch trends by subareas (all species and gears combined, but majority gears are bottom otter trawls). There are three different catch levels, i.e., during 1st stage (1980-1982), the catch level was the highest (15,000-31,000 tons), then in the 2nd stage (1983-1993) decreased by half (6,000-12,000 tons except 4,000 tons in 1983) and in the 3rd stage (1994-2008 and 2016-2018), it further decreased to less than 4,000 tons. The decreases are due to constraints by TAC.

Subarea 3 is the only fishing ground for Japan after 1997, thus this report describes the information in subarea 3.





Note:

(1) Data source: STATLANT21A based on the official statistics provided by Fisheries Agency of Japan.

(2) Japan jointed NAFO in 1980.

(3) Majority gear is the bottom otter trawl.

4. SUBAREA 3

A. Status of the Fisheries

This should be broken down by species and should first indicate the changes that have taken place in the catches. Any available information regarding quantities of fish, by species if possible, being used for industrial purposes should also be presented. An explanation should follow for these changes based on scientists' best judgement. Reference to biological conditions (e.g. length and age composition), fishing conditions (e.g. effort and availability) and environmental conditions, should be made where necessary and appropriate. Any forecasts for the coming year should be included here. Graphic presentations supporting the text are acceptable.

We will first review the global situation in subarea 3 then will analyze by Division in subarea 3.

4.1 Overview

(1) Fisheries

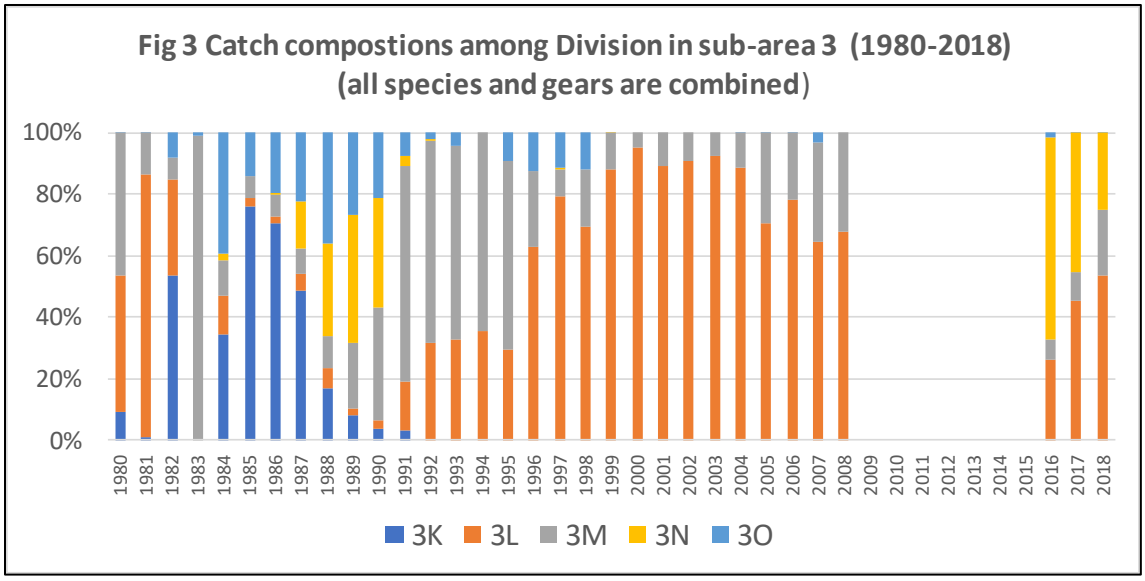
Table 4 shows annual catch (tons) by Division in subarea 3 (all species and gears combined) (1980-2018). There are catch for almost all period in Division 3L+3M, while more in the first half for 3K+3N+3O.

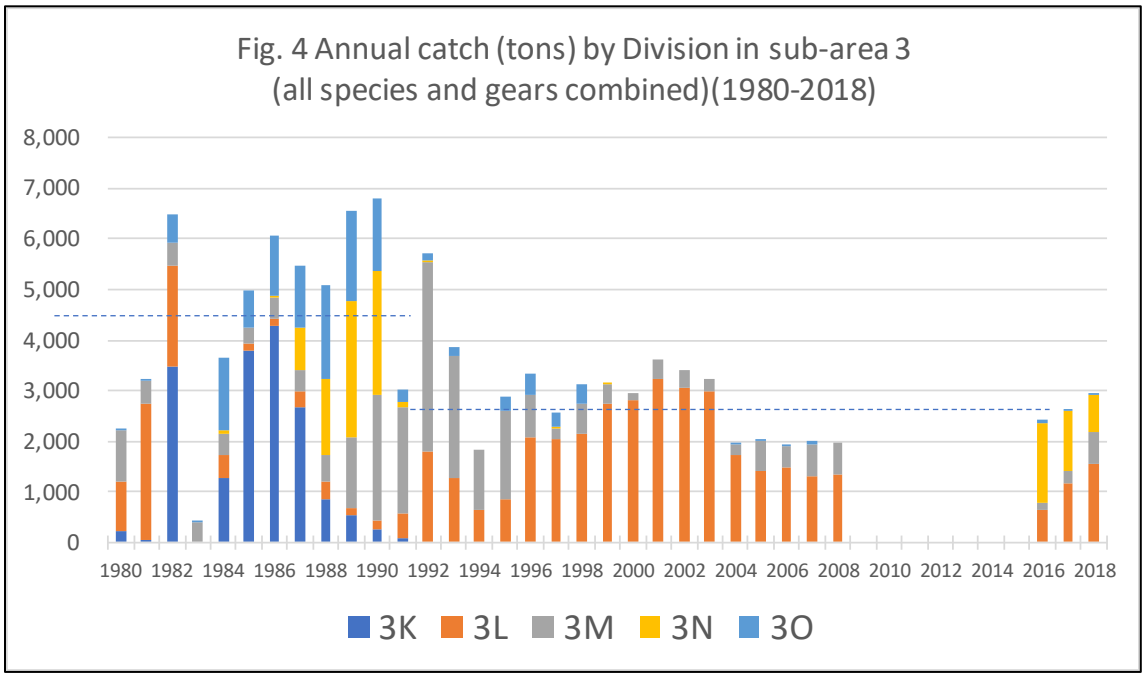
Fig. 3 shows catch compositions among Divisions in subarea 3 (all species and gears combined). Japan operated in five Divisions (3K, 3L, 3M, 3N and 3O). and major fishing Division shifted by period, i.e., Division 3L was the major fishing ground in 1980-1981, then shifted to 3K (1984-1987), 3N (1988-1990), 3M (1991-1995), 3L (1996-2008) and 3L+3N in recent years (2016-2018).

Fig. 4 shows annual catch trends by Division in subarea 3 (all species and gears combined). There are two different catch levels, i.e., the higher catch level (average 4,700 tons) in the first half period (1980-1993), while the lower level (average 2,700 tons) in the latter half period (1994-2008 and 2016-2018) resulting 2,000 tons difference.

Table 4 Annual catch by Division in sub-area 3 (tons) (all species and gears combined)(1980-2018)						
Year	3K	3L	3M	3N	3O	Total
1980	208	983	1,030		2	2,223
1981	40	2,708	442		1	3,191
1982	3,462	2,014	455		548	6,479
1983			406		4	410
1984	1,257	461	416	85	1,448	3,667
1985	3,790	133	339		721	4,983
1986	4,270	140	444	12	1,211	6,077
1987	2,671	298	436	845	1,217	5,467
1988	856	347	507	1,537	1,838	5,085
1989	526	141	1,409	2,701	1,769	6,546
1990	261	175	2,494	2,431	1,436	6,797
1991	88	488	2,096	103	234	3,009
1992		1,810	3,748	21	136	5,715
1993		1,254	2,441		168	3,863
1994		649	1,173			1,822
1995		847	1,759		266	2,872
1996		2,093	813		427	3,333
1997		2,032	224	15	294	2,565
1998		2,162	577		370	3,109
1999		2,739	370	3		3,112
2000		2,794	147			2,941
2001		3,228	399			3,627
2002		3,071	318			3,389
2003		2,978	238			3,216
2004		1,724	222		2	1,948
2005		1,404	591		1	1,996
2006		1,490	410		1	1,901
2007		1,293	654		64	2,011
2008		1,334	638			1,972
2009	No oeprations					
2010						
2011						
2012						
2013						
2014						
2015						
2016		624	168	1,573	44	2,409
2017		1,178	242	1,168	7	2,595
2018		1,554	625	724	4	2,907
(Note) Blank means catch (tons) < 0.5 (including 0 catch) or no operations						

Additional Note:
(1) Data source: STATLANT21A based on the official statistics provided by Fisheries Agency of Japan.
(2) Japan jointed NAFO in 1980.
(3) Majority gear is the bottom otter trawl.





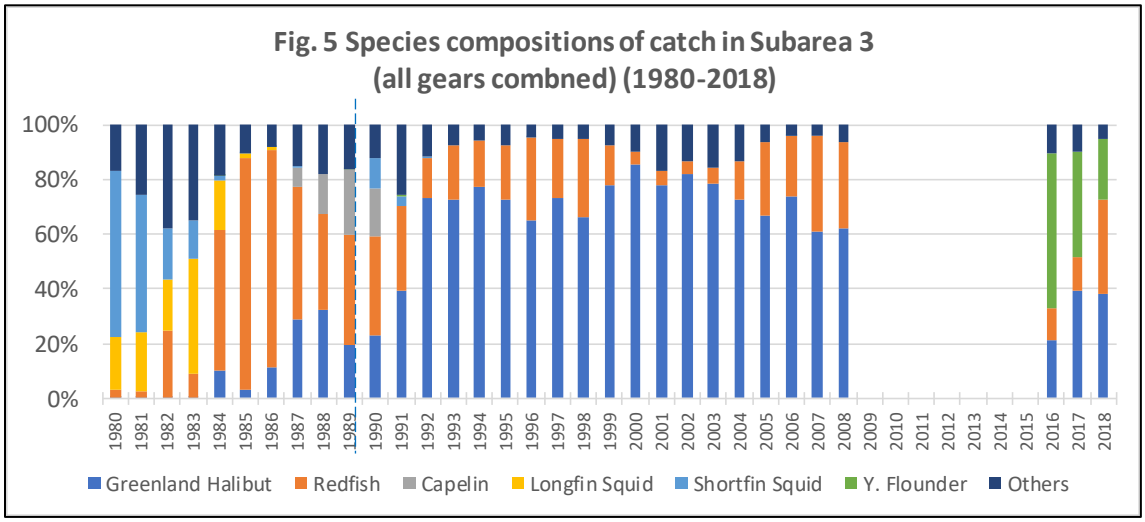
Note:

(1) Data source: STATLANT21A based on the official statistics provided by Fisheries Agency of Japan.

(2) Japan jointed NAFO in 1980.

(3) Majority gear is the bottom otter trawl.

Fig 5 shows TAC species compositions of catch for Japan in subarea 3, i.e., Greenland halibut, Atlantic redfish, caplin and squid. Major species compositions vary by period, i.e., shortfin and longfin squid (1980-1984), redfish (1984-1991), Greenland halibut (1992-2008) and yellowtail flounder (2016-2018). Yellowtail flounder is not TAC species for Japan, but its compositions were high in 2016-2018 because of quota transfers (Greenland halibut, red fish and yellowtail flounders) between Japan and Canada in 2016-2017, thus catch were not reflected to quota (TAC).



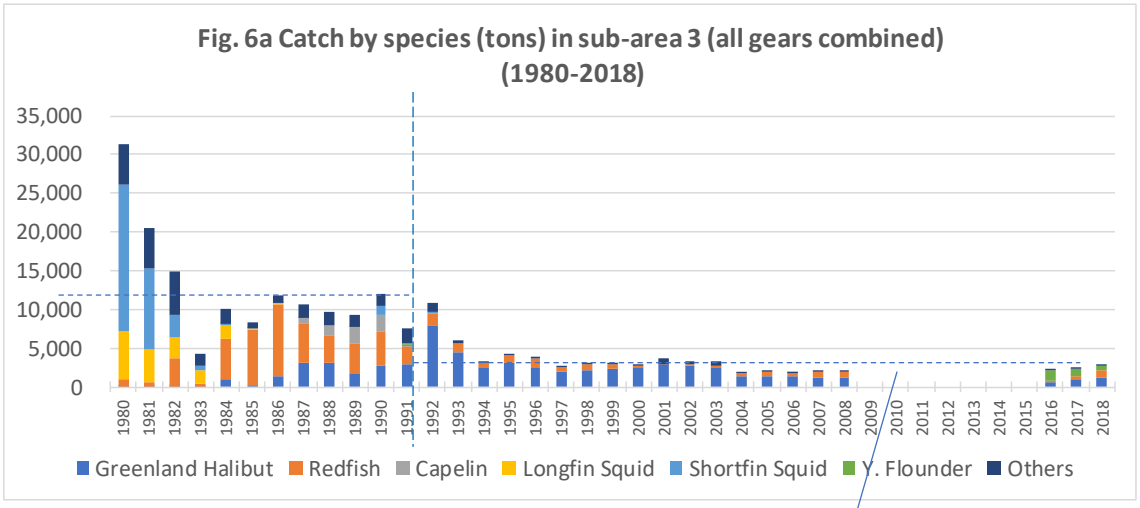
Note:

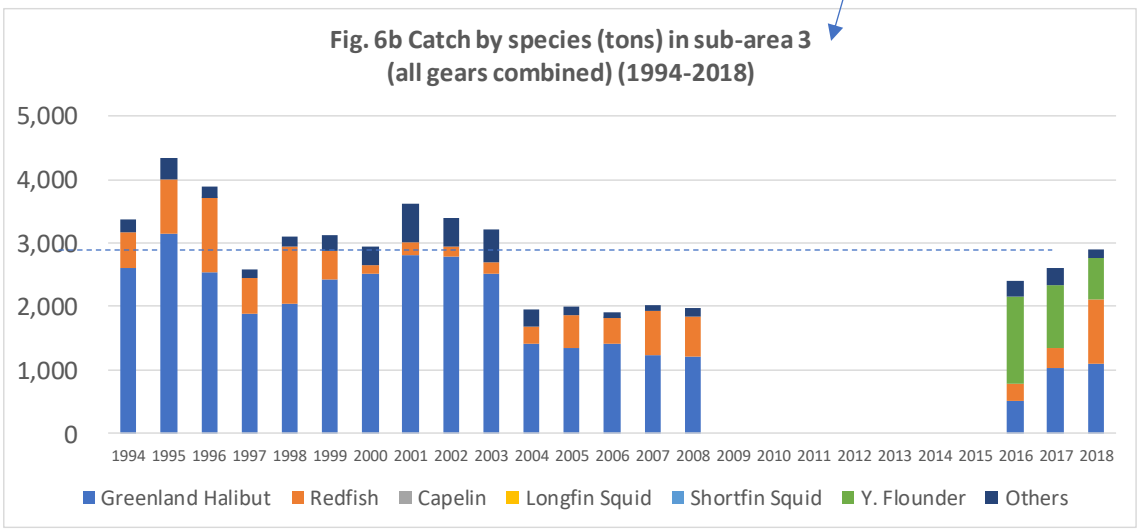
(1) Data source: STATLANT21A based on the official statistics provided by Fisheries Agency of Japan.

(2) Japan jointed NAFO in 1980.

(3) Majority gear is the bottom otter trawl

Fig. 6 shows annual catch trends by species in subarea 3 in two periods (1980-2018 and 1994-2018). There are high and low catch level periods, i.e., high (1980-1993) (average=12,000 tons) and low (1994-2018) (Average=2,900 tons), which is 4 times difference. Yellowtail flounder catch was high (2016-2018) as explained above.





Note:

(1) Horizontal broken lines represent averages.

(2) Data source: STATLANT21A based on the official statistics provided by Fisheries Agency of Japan.

(3) Japan jointed NAFO in 1980.

(4) Majority gear is the bottom otter trawl.

(2) Size frequencies

Size of Greenland halibut was slightly shorter in 2016 (average=49.4cm) than in 2017-2018 (about 48.0cm).

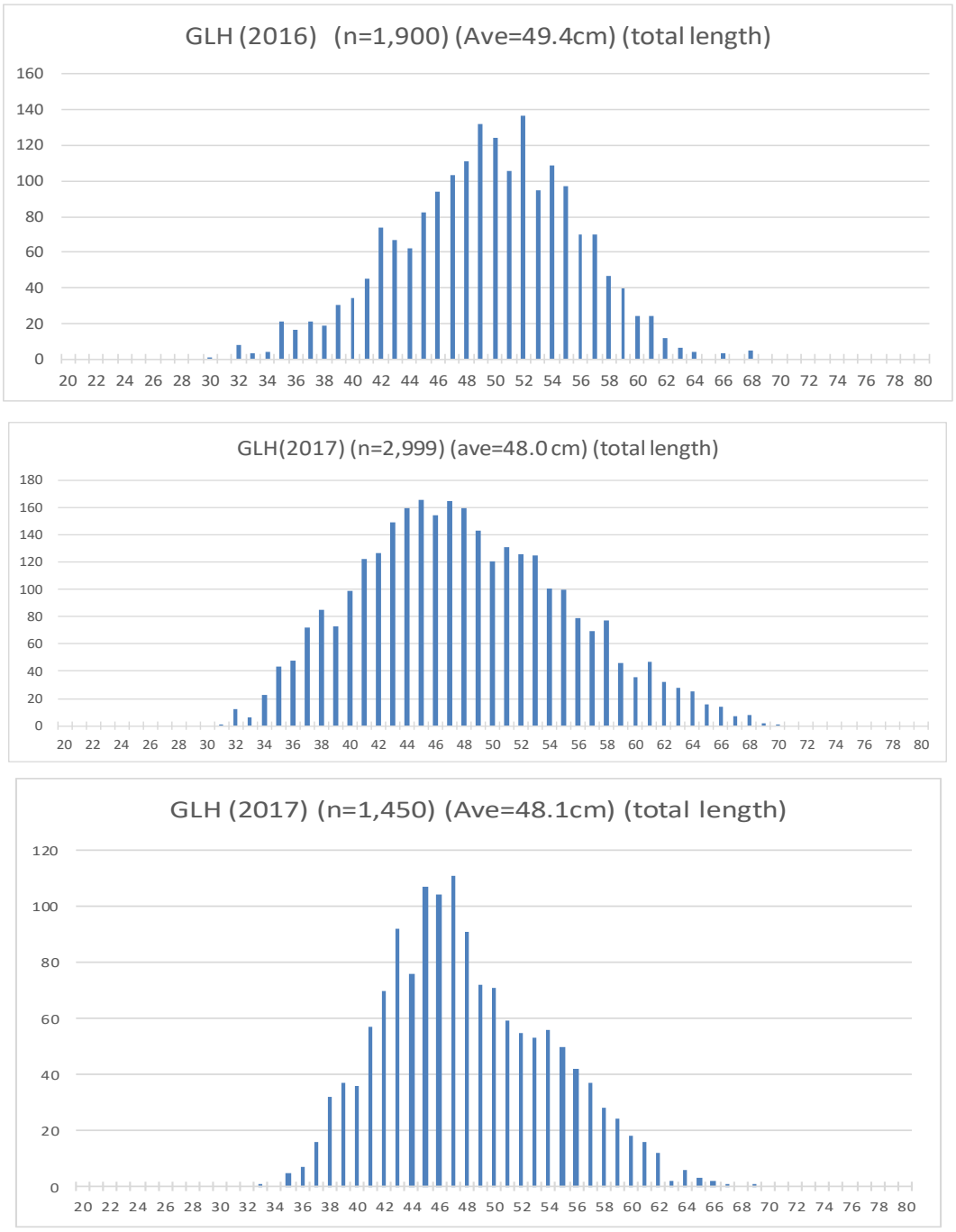


Figure 7. Size frequency distribution based on the total length data measured by one on-board observer for Greenland halibut (2016-2018) (subarea 3)

Red fish

Average sizes in 2016-2017 were same (about 28cm) while it was much larger in 2018 (32cm). Size frequency distributions formed the bi-modal (peaks in 23cm and 32 cm) in 2016 and the unimodal (peak in 26cm) in 2017-2018 (peak was 26cm and 33 cm respectively).

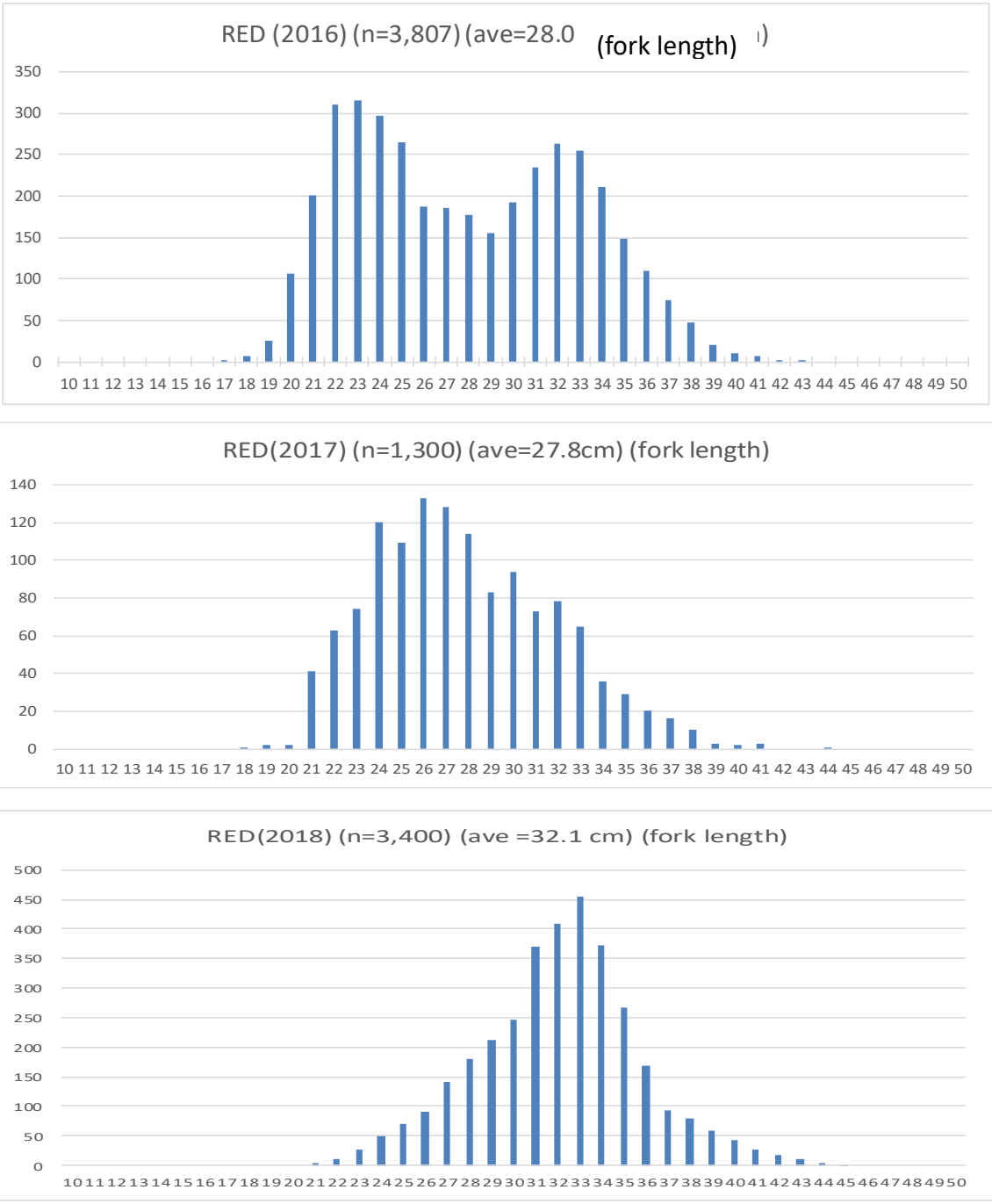


Figure 8. Size frequency distribution based on the fork length data measured by one on-board observer for redfish (2016-2018) (subarea 3)

Yellowtail flounder

Average sizes were similar in 2016-2018 (ave. about 33cm) Size frequency distributions for three years formed unimodal (peak around 33 cm).

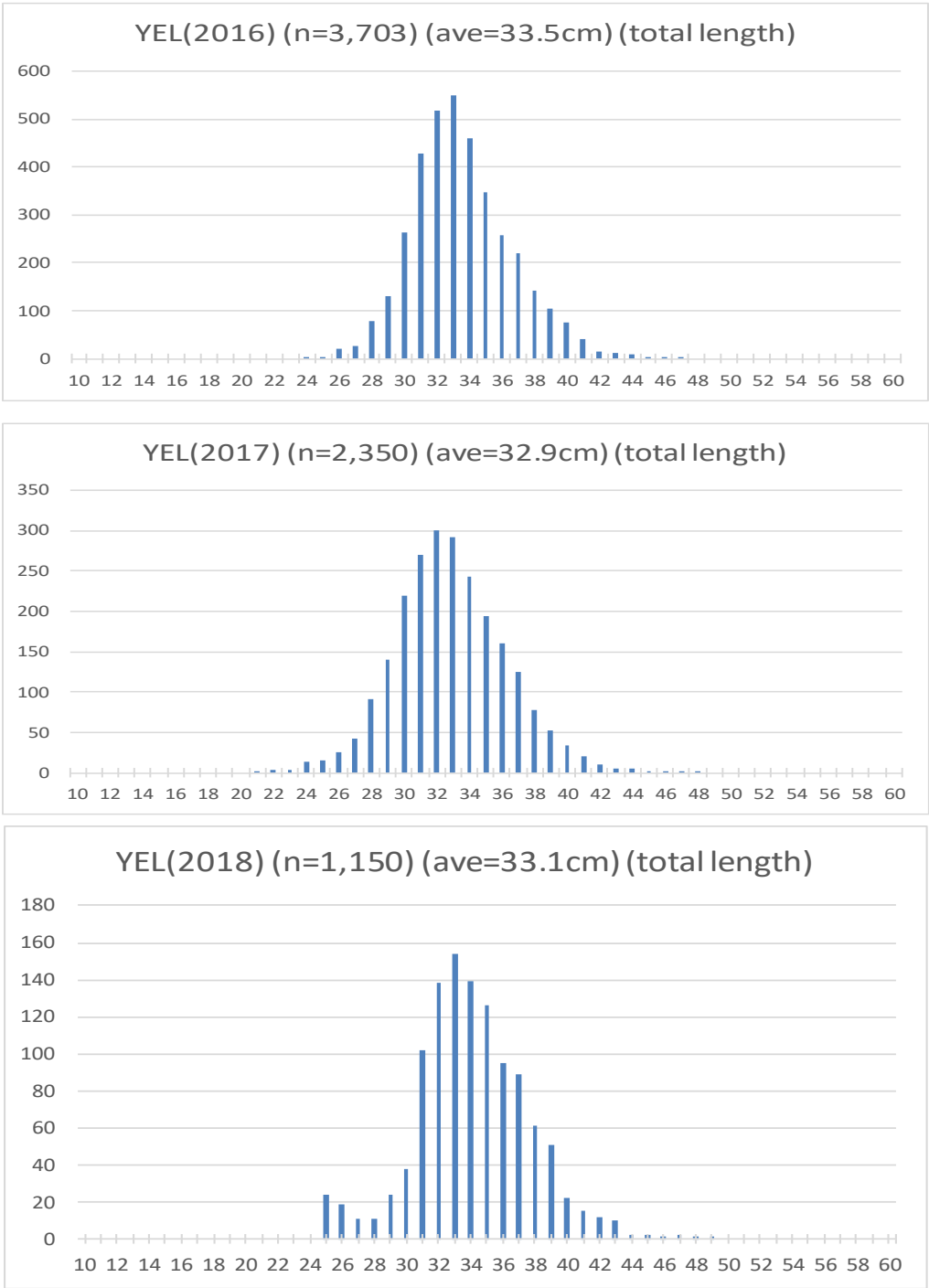


Figure 9. Size frequency distributions based on the total length data collected by one on-board observer for yellowtail flounder (2016-2018) (subarea 3)

4.2 Division 3K

Table 5 shows catch by species in Division 3K (1980-2018) (all gears combined). There were operations only for 11 years (1980-91 except 1983). Redfish was the largest catch (average=1,345 ton), followed by Cod (119 tons) and Greenland halibut (85 tons).

Table 5. Catch (tons) by species in Division 3K (1980-2018) (all gears combined)

CODE	CAT	COD	DGX	FIN	FLW	FLX	GHL	GRO	HAL	PLA	RED	RNG	SHX	SKA	WIT
Common name	Wolffishes (catfish) (ns)	Atlantic Cod	Dogfishes (ns)	Finfishes (ns)	Winter Flounder	Flatfishes (ns)	Greenland Halibut	Groundfishes (ns)	Atlantic Halibut	American Plaice	Atlantic Redfishes (ns)	Roundnose Grenadier	Large Sharks (ns)	Skates (ns)	Witch Flounder
1980		194				5					9				
1981	2	33									4				1
1982	12	752	1	7			9		2		2662			2	15
1983	There were operations in NAFO CA, but not in Division 3K.														
1984		40					67	7			1132		4		7
1985	5	60					196	23		12	3439				55
1986	27	97					87	9	10	2	3986	11	9		32
1987		96					431	20	3	8	2079	9	1		24
1988		17	1				104	19	1	3	693	9	3		6
1989		8					18	6		1	485	5			3
1990		9			1		10				239		1		1
1991				2			8	2		2	63	3	1		7
1992	There were operations in NAFO CA, but not in Division 3K.														
1993															
1994															
1995															
1996															
1997															
1998															
1999															
2000															
2001															
2002															
2003															
2004															
2005															
2006															
2007															
2008															
2009	No operations in NAFO CA														
2010															
2011															
2012															
2013															
2014															
2015															
2016	There were operations in NAFO CA, but not in Division 3K.														
2017															
2018															

Note:
(1) Data source: STATLANT21A based on the official statistics provided by Fisheries Agency of Japan.
(2) Japan jointed NAFO in 1980.
(3) Majority gear is the bottom otter trawl.
(4) Blank means catch (tons) < 0.5 (including 0 catch) or no operations.

4.3 Division 3L (Revised)

Table 6 shows catch by species in Division 3L (1980-2018) (all gears combined) except 1983 and 2009-2015. Redfish and Greenland halibut were major target (TAC) species.

Table 6. Catch (tons) by species in Division 3L (1980-2018) (all gears combined)

CODE	CAT	COD	DGX	FIN	FLX	GHL	GRO	HAL	PLA	RED	RHG	RNG	SHX	SKA	SQI	WIT	YEL
Common name	Wolffishes (catfish) (ns)	Atlantic Cod	Dogfishes (ns)	Finfishes (ns)	Flatfishes (ns)	Greenland Halibut	Groundfishes (ns)	Atlantic Halibut	American Plaice	Atlantic Redfishes (ns)	Roughhead Grenadier	Roundnose Grenadier	Large Sharks (ns)	Skates (ns)	(northern) Shortfin Squid	Witch Flounder	Yellowtail Flounder
1980		938				12		1	6	26							
1981	68	2,379				60		2	29	128				18		24	
1982	60	1,707				5		5	43	159				29		6	
1983	There were operations in NAFO CA, but not in Division 3L.																
1984	11	317		1	1	2	5	2	15	105						2	
1985		1					2	1		129							
1986		1				1			3	135							
1987			1			152	16	2		114		8	5				
1988		114				49	17	6	2	152		6	1				
1989		2				4			21	114							
1990		1				8	1		6	151		3				5	
1991		4				302	11		44	84		5				2	36
1992						1,642	17	16	21	67		3				44	
1993						1,168	48			37						1	
1994			2			516	4	2	1	82		41	1				
1995			6			691	50			47		32	16			5	
1996			35		7	1,900	25		11	74		21	9			11	
1997			3		19	1,849	15	4	7	69		40	22			4	
1998			2		34	1,927	33	3	16	98		34	13			2	
1999					92	2,376	35	5	21	141		39	28			2	
2000					72	2,511	25	3	21	107		27	24			4	
2001					244	2,666	8	33	6	109		134	24			4	
2002						2,645	82	14	78	88		92		34		38	
2003	26					2,505	27	2	71	86	2	183		64		12	
2004	5					1,413	18	5	39	61	3	119		54		7	
2005	0					1,237	7	5	29	52		53	17			4	
2006	0					1,383	5	2	15	36		43		2	2	2	
2007						1,198	2	0	27	29	24			8		5	
2008		0				1,210	15	0	43	29	20			9		8	
2009	No operations in NAFO CA																
2010																	
2011																	
2012																	
2013																	
2014																	
2015																	
2016	2					474	1	2	4	125		11		0		5	
2017	5	1				1,024	0	1	3	125		13		1		5	
2018	8	1				1,101		4		412	28					1	

Note:
(1) Data source: STATLANT21A based on the official statistics provided by Fisheries Agency of Japan.
(2) Japan jointed NAFO in 1980.
(3) Majority gear is the bottom otter trawl.
(4) Blank means catch (tons) < 0.5 (including 0 catch) or no operations.

4.4 Division 3M

Table 7 shows catch by species in Division 3M (1980-2018) (all gears combined). Redfish and Greenland halibut were major target (TAC) species.

Table 7. Catch (tons) by species in Division 3M (1980-2018) (all gears combined)

CODE	CAT	COD	DGX	FIN	FLX	GHL	GRO	HAL	PLA	POK	PRA	RED	RHG	RNG	SHX	SKA	SQI	WIT
Common name	Wolffishes (catfish) (ns)	Atlantic Cod	Dogfishes (ns)	Finfishes (ns)	Flatfishes (ns)	Greenland Halibut	Ground-fishes (ns)	Atlantic Halibut	American Plaice	Pollock (saithe)	Northern Prawn	Atlantic Redfishes (ns)	Roughhead Grenadier	Roundnose Grenadier	Large Sharks (ns)	Skates (ns)	(northern) Shortfin Squid	Witch Flounder
1980		37		16					1			976						
1981		9							47			386						
1982		10							53			392						
1983		1			3	1	2		9			390						
1984		9		3	1	10	2	1	1			389						
1985		5				13	5	1	2			313						
1986		6				35			3			400						
1987		269				33	2					131		1				
1988		5				27	2		78	1		393		1				
1989		38	2			44	25		402			885		9				4
1990		24				58	6		308			2,082		16				
1991		54				128	26	1	450			1,431		6				
1992		2				2,185	78		50			1,424		5				4
1993						1,341	75		49			967		7				2
1994						663						488		22				
1995			8			1,086	82	4				553		25	1			
1996			1			114	7					678		2	11			
1997						12						212						
1998					3	123	6					439		3	3			
1999					5	42						320		1	2			
2000					1	1					114	31						
2001					24	149		3			130	80		12	1			
2002						137	3		5		100	67		6				
2003						14	1		3		117	98	3	2				
2004	1					3	0		4			209		4		1		0
2005	1					100	1	5				483			1			
2006	1	0				21		3				383				2		
2007	1	10				24		6				613	0			0		
2008	0	24				9	0	2				603					0	
2009	No operations in NAFO CA																	
2010																		
2011																		
2012																		
2013																		
2014																		
2015																		
2016	1					35	0	3				128		1				
2017	1	49						1				190				1		
2018	11	82				2		4	2			600	2			3		1

Note:
(1) Data source: STATLANT21A based on the official statistics provided by Fisheries Agency of Japan.
(2) Japan jointed NAFO in 1980.
(3) Majority gear is the bottom otter trawl.
(4) Blank means catch (tons) < 0.5 (including 0 catch) or no operations.

4.5 Division 3N

Table 8 shows catch by species in Division 3M (1980-2018) (all gears combined). Fisheries were not so active comparing to other Divisions except for the high capelin catch (1987-1990) (average =1,616 tons) and the high yellowtail flounder catch (2016-2018) (996 tons).

Table 8. Catch (tons) by species in Division 3N (1980-2018) (all gears combined)

CODE	CAP	CAT	COD	DGX	FIN	GHL	GRO	HAL	PLA	RED	RNG	SKA	WIT	YEL
Common name	Capelin	Wolffishes (catfish) (ns)	Atlantic Cod	Dogfishes (ns)	Finfishes (ns)	Greenland Halibut	Groundfishes (ns)	Atlantic Halibut	American Plaice	Atlantic Redfishes (ns)	Roundnose Grenadier	Skates (ns)	Witch Flounder	Yellowtail Flounder
1980	There were operations in NAFO CA, but not in Division 3N.													
1981														
1982														
1983														
1984					4					81				
1985														
1986										12				
1987	793					1				51				
1988	1,395	2	114					24	2					
1989	2,222		391	1	3	3	7		31	39	1		2	1
1990	2,054		350				2		21	4				
1991			77			2	2		5	4			13	
1992						18	1			1			1	
1993	There were operations in NAFO CA, but not in Division 3N.													
1994														
1995														
1996														
1997						13	1						1	
1998														
1999						2	1							
2000														
2001														
2002														
2003														
2004														
2005														
2006														
2007														
2008														
2009	No operations in NAFO CA													
2010														
2011														
2012														
2013														
2014														
2015														
2016			38					6	145			22	7	1,355
2017			22					3	116			23	4	1,000
2018									77			12	1	634

Note:
(1) Data source: STATLANT21A based on the official statistics provided by Fisheries Agency of Japan.
(2) Japan jointed NAFO in 1980.
(3) Majority gear is the bottom otter trawl.
(4) Blank means catch (tons) < 0.5 (including 0 catch) or no operations.

4.6 Division 3O

Table 9 shows catch by species in Division 3O (1980-2018) (all gears combined). Fisheries were not so active comparing to other Divisions except high redfish catch (1982-1998 except 1983) (average =748 tons).

Table 9. Catch by species in Division 3O (1980-2018) (all gears combined).

CODE	ANG	ARG	BET	BFT	CAT	COD	DGX	FIN	GHL	GRO	HAD	HAL	HKR	HKS	HKW	PLA	POK	RED	RNG	SHX	SKA	SQI	SWO	WIT	YEL	YFT
Common name	American Angler	Argentines (ns)	Bigeye Tuna	Northern Bluefin Tuna	Wolffishes (catfish) (ns)	Atlantic Cod	Dogfishes (ns)	Finfishes (ns)	Greenland Halibut	Groundfishes (ns)	Haddock	Atlantic Halibut	Red Hake	Silver Hake	White Hake	American Plaice	Pollock (saithe)	Atlantic Redfishes (ns)	Roundnose Grenadier	Large Sharks (ns)	Skates (ns)	(northern) Shortfin Squid	Swordfish	Witch Flounder	Yellowtail Flounder	Yellowfin Tuna
1980															2											
1981	There were operations in NAFO CA, but not in Division 3O.																									
1982	1	11				16		1				8		3	6	5		496						1		
1983											1				2			1								
1984	1	12				1		10		5	29	14	13	16	69	5	1	1258				1		13		
1985	3	2								3	7	6		2	19	2		661						16		
1986		4				1		1	3	1	4	7		16	8	1		1162	1	1				1		
1987		9	5			14				4	44	18		1	34			1074		1		2		10		1
1988	1	12	2	2	1	50			1	5	7	9	2		101	4		1606		2			2	21		
1989	1	4					2		5	11		14			6			1724		2						
1990	1	3						1		5	2	5			5	2		1406				4		2		
1991	1	1							3	1		2						226								
1992	1								2	5		1						125		1				1		
1993	2	1							3	2		1						159								
1994	There were operations in NAFO CA, but not in Division 3O.																									
1995												1			1			264								
1996						1				1		1			1			417		4		1		1		
1997									2	3		2						285		2						
1998									3	7		4						355		1						
1999	There were operations in NAFO CA, but not in Division 3O																									
2000																										
2001																										
2002																										
2003																										
2004																		2								
2005																		1								
2006									1																	
2007						0			1							1		61			1					
2008																										
2009	No operations in NAFO CA																									
2010																										
2011																										
2012																										
2013																										
2014																										
2015																										
2016	2					1						3			1	1		30			1			1	4	
2017												1			0			6								
2018																		4								

Note: Data source: (1) STATLANT21A based on the official statistics provided by Fisheries Agency of Japan. (2) Japan jointed NAFO in 1980, (3) Majority gear is the bottom otter trawl and (4) Blank means catch (tons) < 0.5 (including 0 catch) or no operations.

B. Special Research Studies

1. Environmental Studies
    a) Hydrographic studies
    b) Plankton studies (including eggs and larvae)
    c) Benthic studies
    d) Observations on ice conditions in Subareas 0 to 4
    e) Other environmental studies
2. Biological studies by species
    Material should be presented in the order of the life cycle, reporting studies on eggs and larval stages first.
3. Gear and selectivity studies, including studies on fishing operations
4. Miscellaneous studies

Not conduced in 2018.

5. Recommendation

Major data source of this national report was STATLANT21A from NAFO homepage that is originally from Fisheries Agency of Japan. Its extraction application is a user friendly and menu-driven extraction tool. However, it will be more useful and effective if the numbers of boats by gear operated were available in the tool in the future. This is because such fundamental information is essential. Although STATLNAT 21B includes gear types, quantities (numbers of boats operated) are not available. Thus, we were not to include such information where had question(?) marks in Table 1. We could get only some patchy information on numbers of boats operated by gear type through the Secretariat. Hope that this information can be available in STATLANT21A extraction tool or 21B (comma-delimited text format). We had also tried to investigate this information on our side for the last two years, but there were some difficulties to retrieve such old information. Although STATLNAT21A in NAFO homepage is very easy to use, STATLANT21B is not so because the current one is in the comma-delimited text format by decade, which requires for users to process data. Thus, it is ideal that 21B database will be like 21A extraction tool in the future.

Annex A Fishing vessel in recent years (2016-2019)

FV No 68 Fukuyoshi maru (stern trawler) (Gross Tonnage:401 t) (Photo 1) started her first fishing operation in the NAFO CA from April 8, 2016 (Division 3L) targeting Greenland halibut after 7 years absence of operations by other Japanese vessels. There is one scientific observer on-board.

Photo 1 FV No 68 Fukuyoshi maru
(St. John's, New Newfoundland and Labrador, Canada)