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**Performance and description of Canadian multi-species bottom trawl surveys in  
NAFO subarea 2 + Divisions 3KLMNO, with emphasis on 2014-2015.**

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**Abstract**

We update basic survey performance statistics and document the spatial coverage of the annual spring and autumn multi-species surveys conducted by the Department of Fisheries and Oceans, Newfoundland Region over 2014-2015. Noteworthy issues include modifications to survey density, extended time required to complete surveys and coverage shortfalls (particularly during fall 2014 and spring 2015). The impact of these issues in relation to the stock assessments of various species is briefly discussed.

**Introduction**

The Canadian Department of Fisheries and Oceans, Newfoundland Region, has undertaken stratified random surveys in portions of NAFO subareas 2 +3 since the early 1970's. A full description of the history of these surveys, survey stratification, trawl gear, towing protocols, vessels employed, as well as details of spatial coverage up to the surveys of 2008 are detailed in a suite of documents [see Healey *et al.* 2012, Healey and Brodie (2009), Brodie and Stansbury (2007), Brodie (2005), and references therein].

These surveys are stratified by depth range, and maps of Divs. 2GHJ3KLMNOPs illustrating the stratification boundaries are provided in Figs. 1-9. Survey "sets" (i.e. standardized fishing hauls at a randomly selected sampling unit) for these stratified-random surveys are distributed using a proportional-allocation scheme, whereby the number of sets allocated for a given stratum is proportional to the stratum area, subject to the condition that each stratum must be allocated a minimum of two sets. Tow sites are randomly selected from sampling units within each stratum, with each sampling unit typically encompassing an area of approximately 3.5 square nautical miles (Doubleday (ed.) 1981). Within each stratum, one alternate station is also selected, and is occupied if a sample from one of the other units cannot be obtained (e.g. untrawlable bottom). When computing the stratified estimators of abundance or biomass for any given species, individual strata must

have a minimum of two successful survey sets to be considered completed to enable calculation of stratum variance.

The Canadian Coast Guard vessels employed during current fall surveys are the CCGS *Alfred Needler* and the CCGS *Teleost*. The CCGS *Alfred Needler* (overall length 50m) conducts fishing sets at depths of 732m or less, whereas the CCGS *Teleost* (overall length 63m) completes survey sets to depths of 1500m. During spring surveys, typically only the CCGS *Alfred Needler* is used; the CCGS *Teleost* has been deployed at times when the CCGS *Alfred Needler* was unavailable due to significant mechanical problems. The CCGS *Wilfred Templeman*, which had been one of the primary vessels for survey work in the Newfoundland Region, was decommissioned in 2008.

Focus herein is upon the performance of the spring and fall surveys in 2014-2015, with additional attention given to survey efforts since the mid-2000's.

### **Methods**

Survey results were analyzed to determine the total number of successful fishing "sets" ( sampling events for which all fishing tow protocols are met and with minimal or no damage to the survey gear). Counts of successful sets for both spring and fall surveys were organized by stratum, division and vessel. Survey start and end dates and the depth ranges covered were also tabulated over the entire period in which the Campelen 1800 shrimp trawl has been used. This sampling gear was first deployed in the 1995 fall survey, and has been used in all spring surveys since 1996. McCallum and Walsh (1996) provide a detailed description of the Campelen 1800 trawl.

In addition to the number of sets successfully completed, tabulations of the number of sets planned *a priori* per division/stratum and survey series (spring/fall) were compiled to demonstrate slight changes to the intensity of the fall survey in recent years, and to also provide a comparison of overall survey success.

### **Fall Surveys**

The current fall survey design includes Divisions 2HJ3KLMNO, and this survey is generally conducted from early-October to mid-December (Table 1). Division 2G has not been surveyed since 1999 and is no longer included in survey planning. Since the early-2000s, coverage of Division 2H was planned for every second year, though the amount of available vessel time was unchanged across years. In 2011 it was decided to cover Division 2H annually at the expense of dropping coverage in Divisions 3NO for strata beyond 400 fathoms (732m). This was done for several reasons, including the importance of Division 2H for the assessment of several key shellfish and groundfish species. In addition, the deep-water coverage of strata in the Flemish Pass and western slopes of Division 3M was also permanently excluded from survey planning in 2010.

The survey allocation for the fall of 2011 included coverage of Div. 2H (84 planned sets) – and current plans are to continue surveying Div. 2H annually (Table 1). To facilitate this, both the inshore strata of Divs. 3K and 3L (19 and 34 planned sets respectively) and the deep-water (>732m) strata of Divs. 3NO (48 planned sets) were excluded from the survey design when planning the fall 2011 survey, yielding a reduction of 101 planned sets compared to the 2010 allocation. The inshore Div. 3KL strata were added to the survey design in the mid-1990s but have not been consistently covered since 2007. The limited survey coverage that has been attained in these inshore areas in recent years has occurred at times when the survey vessels have had to leave the offshore area due to severe weather. Portions of the deep-water strata in Divs. 3NO area are unsuitable for trawling and typically, a considerable amount of time in previous years was used to search for deployment sites near the intended site. There was a slight reduction in the number of vessel days available in 2011 but no further reductions to the planned coverage were considered necessary to take this into account.

In 2012 and 2013, the planned coverage was for 674 sets as per the 2011 initial allocation. In 2012, there was substantive mechanical issues with one of the research vessels that required 14 additional days to complete the survey by Dec 21. In 2013, there were no major issues with vessels.

In 2014, major mechanical issues with one vessel caused it to be out of service for the entire fall survey. In advance of the survey, it was decided that (1) Divisions 3NO would be dropped from the coverage (145 planned sets), and (2) that Division 2H would not be surveyed beyond 750m (16 planned sets). This reduced the planned coverage from 674 sets to 513 sets (24% reduction) and in order to accomplish this reduced survey using one vessel, an additional 28 days were added to the survey in January 2015. For the 2015 fall survey, a slow start to the survey required an *a priori* reduction of 28 sets in depths beyond 500m in Div. 2H, accounting for a 33% reduction from the planned sets. In addition, the deep-water 3L strata (>400 fathoms) were not sampled (30 planned sets) as the survey ran out of time.

### Spring Surveys

The spring survey encompasses Divs. 3LNOPs, and is typically conducted from early-April through to late June. Spring survey allocations in Div. 3LNOP were consistent from 2006-2010 in regard to planned sets. A total of 512 sets were allocated annually, which includes 34 sets within the inshore strata of Div. 3L (Table 1). However, the inshore area is considered of lower priority and is infrequently occupied and starting in 2011 the planned sets did not include inshore Div. 3L which dropped the total to 478.

In 2014, major mechanical issues with the primary spring survey vessel required an *a priori* reduction of 64 sets from Divisions 3LNOPs for a reduction of 13% from the entire survey but primarily from Div. 3NOPs) as well as the deployment of our second research vessel. In 2015, significant mechanical issues with our primary spring vessel, as well as bad weather once the vessel returned to service, caused a major reduction in Div. 3L

where the survey covered only 56 of the 142 planned sets for a reduction of 61%. There were 15 of 37 strata not sampled in Div. 3L accounting for 43% of the planned survey area and 12 of 22 of the remaining strata received less than their intended coverage.

### **Results and Discussion**

A synopsis of the successful sets during fall surveys over 1995-2015 (Table 2; see also Fig. 10a) indicates that challenges in completing fall surveys have continued over 2014-2015. It is noteworthy that the planned sets have declined over the time series and the number of successful sets were the lowest in the time series in 2014 (at 503). Divisionally, the greatest impact occur with Divs. 2J3KL, particularly so in 2011 when only 340 of 445 sets were completed (Table 2) and this was the second lowest in the time-series. In 2014, there was better coverage in 2J3KL, including the coverage of deep strata in Division 3L for the first time since 2010. The overall low set count in 2014 is primarily due to the elimination of Divisions 3NO at the start of the survey as well as coverage beyond 750m in Div. 2H. In addition, the survey required an extension into January to complete the coverage in 3L. In 2015, the realized coverage was close to the planned coverage with the exception of no sampling in Div. 2H greater than 500m and in Div. 3L greater than 400 fathoms.

Detailed examination of coverage in the 2011-2015 fall surveys (Table 4a-h, Fig. 12) identifies where the gaps exist. The deficiencies of the 2011 survey include five incomplete strata in Div. 2H (936, 937, 948, 949, and 950), with reduced set counts across most of Divs. 2J3KL due to the mid-survey adjustments. In fact, for 2012 onward, Div. 2H strata 937, 949 and 950 have been excluded from the planned sets due to difficulty with untrawlable bottom. The surveys in 2012 and 2013 were much improved in the core offshore areas in regard to meeting the planned number of sets but inshore strata in Divisions 3KL and the deepwater strata in Division 3L accounting for much of the shortfall. For 2014, most of the gaps exist with the elimination of Div. 3NO and strata beyond 750m in Div. 2H. For 2015, only strata greater than 500m in Div. 2H and strata greater than 400 fathoms in Div. 3L were not sampled and most other Divisions realized their planned allocation. Comparison of intended versus realized sets during 2009 to 2015 (Fig. 10b) indicate completion rates between 75% (2014) and 95% (2013) respectively with the shortfall usually occurring with Div. 3L deep-water coverage.

Fall surveys of 2009-2015 were conducted within the normal timeframe with two notable exceptions. The first was that during the fall of 2010, the survey within Div. 3O was a couple of weeks later than normal and, secondly, the survey of 2014 required extension into January 2015.

In the spring surveys of 2009-2014, the number of sets completed (Table 3; see also Fig. 11a) is quite good – the percentage of intended sets completed over 1996-2015 has been 90% or higher with the exception of 2006 (46%), 2014 (85%) and 2015 (78%) (Fig. 11b). Mechanical difficulties with the primary vessel (CCGS

*Alfred Needler*) in 2009, 2014 and 2015 required the utilization of the CCGS *Teleost*, which completed 81 of 472 successful sets in 2009, 182 of 408 successful sets in 2014 over Divs. 3LNOPs.

Set counts by stratum for spring surveys in 2009-2015 (Table 5a-d) show that the only coverage issues were two incomplete strata in 2010, three in 2011 and two in 2012. However, the 2015 survey was largely incomplete in Div. 3L with 15 of 37 strata not sampled and less accomplished than planned for 12 of 22 of the remaining strata. The timing of the recent spring surveys was within the typical range with the exception of 2014 where Divisions 3NO were covered later than normal.

In addition to gaps in spatial coverage and reduced intensity in some years, another potential source of uncertainty in the survey may result from vessel effects that may be introduced when research vessels conduct survey sets in an area typically covered by another vessel (see Brodie and Stansbury, 2007). This was an issue in the 2014 survey where CCGS *Teleost* conducted the entire Division 3L survey shallower than 732m. There was some variation over 2009-2014 in the proportion of sets conducted by the CCGS *Teleost* and the CCGS *Alfred Needler* within Div. 3K during fall surveys. In addition, the CCGS *Teleost* conducted a large proportion of the 2014 spring 3LNO survey, and, portions of the 2009 spring survey, which is atypical but has occurred infrequently in previous surveys.

The decision to attempt coverage of Div. 2H annually at the cost of excluding the deep-water strata in Divs. 3NO has some impact on the information available for various assessments. For both Greenland Halibut and the Northern shrimp stock (*Pandalus borealis*) within Shrimp Fishing Area 5, annual coverage of Div. 2H will be beneficial in monitoring resource trends, and should permit enhanced capabilities when providing of management advice, particularly for the relatively short-lived shrimp. Alternatively, the loss of the deep-water survey coverage in Divs. 3NO will have no impact on the stock assessment of traditionally important commercial species (e.g. Greenland Halibut, Witch Flounder and Grenadiers) as these strata are not included in the calculation of indices. Nevertheless, there is added protection for coral and sponge Vulnerable Marine Ecosystems within the Div. 3NO deep-water area (>400 fathoms) as DFO has no plans to sample these deep-water strata in the near future.

Division 2H is covered at the beginning of the fall survey in early October, and is currently allocated 84 sets. Although coverage of the deep-water in Divs. 3NO has been cancelled (48 planned sets), a concern is that the survey design at present has very limited scope for further reductions when survey delays inevitably arise. In the recent past, Division 3M, the inshore strata of Divs. 3KL, and the deep-water portion of Divs. 3NO were routinely cancelled in order to preserve the continuity of other core offshore areas with long-standing coverage considered more crucial to stock assessment. In all fall surveys from 2011 onward none of these areas have been planned to be covered. Given the current rate of survey time lost and the fact that a third research vessel is no longer available to assist in survey coverage when problems arise, it is possible that in-

situ unplanned reductions may be more frequent in the near future. Any loss of coverage in the areas presently having long-standing time series is likely to have an adverse effect on the stock assessments of multiple species.

### **Conclusion**

Extensive mechanical delays during the 2009, 2011 and 2014 fall surveys resulted in reduced survey coverage, interchange of research vessels outside of their normal area coverage pattern, and have extended the time required to complete surveys of the individual divisions. The number of survey sets completed in the fall of 2009, 2011 and 2014 were relatively low, and some of the survey area was not covered. Spring surveys have generally been fully completed with limited coverage issues except for 2014 and 2015. Deficiencies in these surveys combined with those over 1995-2008 (see Brodie and Stansbury, 2007, Healey and Brodie, 2009) impact the assessments of many groundfish and invertebrate stocks to varying degrees, uncertainties which are typically not factored into the assessment results nor management advice.

### **Acknowledgements**

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### **References**

- Brodie, W. MS 2005. A description of the autumn multispecies surveys in SA 2 + Div. 3KLMNO from 1995-2004. NAFO SCR Doc., No. 05/8, Serial No. N5083.
- Brodie, W., and D. Stansbury. 2007. A Brief Description of Canadian Multispecies Surveys in SA2+ Divisions 3KLMNO from 1995-2006. NAFO SCR Doc. 07/18, Ser. No. N5366.
- Doubleday, W.G. (ed.). 1981. Manual on Groundfish Surveys in the Northwest Atlantic. NAFO Scientific Council Studies, Number 2, 55 p.
- Healey, B.P., and W.B. Brodie. 2009. Brief notes on the execution of Canadian multi-species surveys in 2007 and 2008. NAFO SCR 09/12, Ser. No. N5639.
- Healey, B.P., W.B. Brodie, D.W. Ings, and D.J. Power. 2012. Performance and description of Canadian multi-species surveys in NAFO Subarea 2 + Divisions 3KLMNO, with emphasis on 2009-2011. NAFO SCR 12/19, Ser. No. N6043.

McCallum, B.R., and S.J. Walsh. 1996. Groundfish Survey Trawls Used at the Northwest Atlantic Fisheries Centre, 1971-Present. NAFO SCR 96/50, Ser. No. N2726.

Table 1. Number of survey sets planned per Division, for fall and spring surveys over 2006-2015.

		Fall Surveys									
Division/ sub-Division	Year										
	2006	2007	2008	2009	2010	2011 <sup>a</sup>	2012	2013	2014 <sup>a</sup>	2015 <sup>a</sup>	
2H	83		77		77	84	84	84	84	84	
2J	117	117	108	121	117	117	117	117	117	117	
3K <sup>b</sup>	175	175	162	181	175	156	156	156	156	156	
3L <sup>b</sup>	206	206	191	213	206	172	172	172	172	172	
3M	26	26	23	26							
3N	94	94	88	97	94	70	70	70	70	70	
3O	99	99	92	103	99	75	75	75	75	75	
Total	800	717	741	741	768	674	674	674	674	674	

		Spring Surveys									
Division/ sub-Division	Year										
	2006	2007	2008	2009	2010	2011	2012	2013	2014 <sup>a</sup>	2015 <sup>a</sup>	
3L <sup>b</sup>	176	176	176	176	176	142	142	142	142	142	
3N	79	79	79	79	79	79	79	79	79	79	
3O	79	79	79	79	79	79	79	79	79	79	
3Ps	178	178	178	178	178	178	178	178	178	178	
Total	512	512	512	512	512	478	478	478	478	478	

<sup>a</sup> Does not reflect survey allocation reductions implemented as a result of unplanned issues

<sup>b</sup> Includes inshore sets (34 in 3L; 19 in 3K) from 2006-2010 which were considered lower priority and were rarely achieved



Table 2. Summary of successful sets, Canadian fall surveys 1995-2015. Depths surveyed by each vessel given in meters, number of sets appear in parentheses.

Year	Division	Ship			Total	Year	Division	Ship			Total	Year	Division	Ship			Total
		Teleost	W. Templeman	A. Needler				Teleost	W. Templeman	A. Needler				Teleost	W. Templeman	A. Needler	
1995	2G	Not surveyed in 1995				2003	2G	Not surveyed in 2003				2011	2G	Not surveyed in 2011			
	2H						2H				116		2H	91-1480 (79)			79
	2J	145-948 (84)			84		2J	123-1404 (116)			116		2J	132-1411 (99)			99
	3K	166-1444 (31) 162-494 (100)			131		3K	151-1474 (118) 115-489 (50)			168		3K	139-1429 (125)			125
	3L	733-1210 (5) 63-640 (161)			166		3L	753-1446 (30) 32-702 (175)			205		3L	201-529 (12) 61-663 (104)			116
	3M	Not surveyed in 1995					3M	795-1455 (26)			26		3M	Not surveyed in 2011			
	3N	40-650 (90)			90		3N	43-727 (70)			70		3N	43-673 (70)			70
3O	63-730 (81)			81	3O	761-1382 (8) 63-650 (75)			83	3O	64-692 (75)			75			
1995 fall survey extended into January 1996 (66 sets)					552	2003 fall survey extended into January 2004 (210 sets)					668						564
1996	2G	127 - 1436 (47)			47	2004	2G	Not surveyed in 2004				2012	2G	Not surveyed in 2012			
	2H	122 - 1415 (77)			77		2H	109-1415 (87)			87		2H	99-1435(84)			84
	2J	126 - 1410 (117)			117		2J	127-1365 (115)			115		2J	114-1425(115)			115
	3K	111 - 1368 (115) 126 - 472 (60)			175		3K	112-1412 (135) 212-549 (16)			151		3K	145-1435(133) 141-353(8)			141
	3L	805 - 1433 (31) 51 - 671 (180)			211		3L	151-522 (4) 44-653 (143)			147		3L	65-725(142)			142
	3M	784 - 1400 (18) 127 - 707 (68)			86		3M	Not surveyed in 2004					3M	Not surveyed in 2012			
	3N	390 - 1147 (13) 37 - 309 (54)			67		3N	40-659 (69)			69		3N	39-641(70)			70
3O	68 - 690 (24) 65 - 139 (19) 63 - 304 (15)			58	3O	63-634 (76)			76	3O	62-631(75)			75			
					838	2004 fall survey extended into February 2005 (36 sets)					645						627
1997	2G	201-1209 (69)			69	2005	2G	Not surveyed in 2005				2013	2G	Not surveyed in 2013			
	2H	220-1382 (71)			71		2H	107-1437 (81)			81		2H	91-1378(83)			83
	2J	123-1488 (117)			117		2J	118-1427 (108) 172-416 (9)			117		2J	99-1445(116)			116
	3K	143-1431 (155) 117-421 (20)			175		3K	150-1334 (26) 136-669 (141)			167		3K	140-1407(87) 155-488(60)			147
	3L	161-1436 (71) 35-714 (134)			205		3L	803-1351 (7) 50-706 (120) 121-667 (57)			184		3L	100-304(6) 57-657(142)			148
	3M	799-1379 (26)			26		3M	Not surveyed in 2005					3M	Not surveyed in 2013			
	3N	41-769 (74)			74		3N	776-1445 (17) 42-633 (69)			86		3N	42-681(70)			70
3O	62-611 (73)			73	3O	754-1410 (24) 69-649 (75)			99	3O	66-630(75)			75			
					810	2005 fall survey extended into January 2006 (86 sets)					653						639
1998	2G	143-1488 (34)			34	2006	2G	Not surveyed in 2006				2014	2G	Not surveyed in 2014			
	2H	98-1473 (83)			83		2H	107-1437 (81)			81		2H	101-677(66)			66
	2J	126-1398 (118)			118		2J	107-1443 (117)			117		2J	118-1402(110)			110
	3K	122-1415 (154) 121-346 (17)			171		3K	153-1384 (93) 109-480 (61)			154		3K	132-1469(154)			154
	3L	691-1437 (32) 34-675 (172)			204		3L	111-1401 (34) 61-641 (151)			185		3L	62-1388(170)			170
	3M	768-1436 (26)			26		3M	756-1352 (23)			23		3M	Not surveyed in 2014			
	3N	834-1447 (12) 37-1079 (78)			90		3N	46-650 (70)			70		3N	313-692(3)			3
3O	82-1076 (87)			87	3O	63-674 (74)			74	3O	Not surveyed in 2014						
					813						704						503
1999	2G	142-1415(69)			69	2007	2G	Not surveyed in 2007				2015	2G	Not surveyed in 2015			
	2H	104-1454(81)			81		2H	127-1494 (115)			115		2H	90-489(53)			53
	2J	109-1375(115)			115		2J	145-1358 (92) 149-683 (37)			129		2J	116-1418(114)			114
	3K	146-1477(154)			154		3K	81-1424 (48) 61-694 (120)			168		3K	134-1408(151)			151
	3L	1366(1) 63-1407 (169)			170		3L	768-1404 (26)			26		3L	165-335(19) 61-703(123)			142
	3M	853-1403(12)			12		3M	775-1419 (25) 48-652 (69)			94		3M	Not surveyed in 2015			
	3N	39-664(68)			68		3N	753-1410 (24) 64-632 (75)			99		3N	39-72(69)			69
3O	58-692(75)			75	3O				631	3O	64-694(75)			75			
					744						604						604
2000	2G	Not surveyed in 2000				2008	2G	Not surveyed in 2008				2009	2G	Not surveyed in 2009			
	2H						2H	114-1392 (69)			69		2H	111-1325 (108)			108
	2J	127-1400 (117)			117		2J	253-1422 (20) 125-630 (79)			99		2J	135-1412(92) 150-469 (51)			143
	3K	113-1379 (159)			159		3K	839-1439 (10) 147-608 (52) 148-455 (46)			108		3K	784-1385 (30) 62-682 (130)			160
	3L	152-1430 (74) 42-447 (102)			176		3L	62-664 (83) 71-332 (43)			126		3L	Not surveyed in 2009			
	3M	764-1401 (26)			26		3M	Not surveyed in 2008					3M	798-1409 (11) 42-708 (64)			75
	3N	747-1419 (24) 46-642 (70)			94		3N	38-643 (64)			64		3N	768-1397 (24) 48-696 (76)			100
3O	752-1424 (24) 62-654 (76)			100	3O	60-661 (66)			66	3O				586			
					672						532						586
2001	2G	Not surveyed in 2001				2009	2G	Not surveyed in 2009				2010	2G	Not surveyed in 2010			
	2H	999-1466 (8)			57		2H	111-1325 (108)			108		2H	95-1451 (70)			70
	2J	120-1389 (49)			120		2J	135-1412(92)			143		2J	109-1397 (113)			113
	3K	146-1479 (106) 128-439 (55) 170-252 (4)			165		3K	784-1385 (30) 62-682 (130)			160		3K	140-1442 (111) 123-478 (62)			173
	3L	146-1457 (34) 38-702 (169) 187-203 (2)			205		3L	Not surveyed in 2009					3L	100-1448 (55) 58-657 (141)			196
	3M	763-1407 (26)			26		3M	798-1409 (11) 42-708 (64)			75		3M	Not surveyed in 2010			
	3N	739-1410 (24) 45-660 (70)			94		3N	768-1397 (24) 48-696 (76)			100		3N	855-1219 (4) 40-614 (68)			72
3O	803-1391 (22) 67-703 (75)			97	3O				586	3O	61-667 (75)			75			
					764						699						699
2002	2G	Not surveyed in 2002				2010	2G	Not surveyed in 2010				2010	2G	Not surveyed in 2010			
	2H						2H	95-1451 (70)			70		2H	95-1451 (70)			70
	2J	102-1372 (98) 136-572 (19)			117		2J	109-1397 (113)			113		2J	109-1397 (113)			113
	3K	156-1395 (64) 121-481 (111)			175		3K	140-1442 (111) 123-478 (62)			173		3K	140-1442 (111) 123-478 (62)			173
	3L	763-1431 (30) 35-670 (176)			206		3L	100-1448 (55) 58-657 (141)			196		3L	100-1448 (55) 58-657 (141)			196
	3M	818-1403 (26)			26		3M	Not surveyed in 2010					3M	Not surveyed in 2010			
	3N	811-1429 (24) 44-675 (70)			94		3N	855-1219 (4) 40-614 (68)			72		3N	855-1219 (4) 40-614 (68)			72
3O	775-1504 (24) 65-696 (75)			99	3O	61-667 (75)			75	3O	61-667 (75)			75			
2002 fall survey extended into January 2003 (128 sets)					717						699						699

Table 3. Summary of successful sets, Canadian spring surveys 1996-2015. Depths surveyed by each vessel given in meters, number of sets appear in parentheses.

Year	Division	Ship	Total	Year	Division	Ship	Total	Year	Division	Ship	Total
		<i>W. Templeman</i>									
1996	3L	66-664	188	2004	3L	47-710	151	2012	3L	60-723	132
	3N	42-665	82		3N	44-675	79		3N	38-665	78
	3O	65-685	86		3O	61-636	79		3O	63-656	79
	3Ps	42-613	146		3Ps	36-591 <sup>1</sup>	175		3Ps	41-670	175
			<b>502</b>				<b>484</b>				<b>464</b>
1997	3L	60-681	158	2005	3L	64-672	133	2013	3L	62-632	134
	3N	35-689	71		3N	45-691	78		3N	40-689	79
	3O	62-669	81		3O	66-719	79		3O	64-650	79
	3Ps	34-498	157		3Ps	37-658 <sup>2</sup>	176		3Ps	41-608	177
			<b>467</b>				<b>466</b>				<b>469</b>
1998	3L	53-721	163	2006	3L	60-70 <sup>3</sup>	141	2014	3L	64-702 <sup>8</sup>	135
	3N	38-682	88		3N	46-77 <sup>3</sup>	22		3N	47-662 <sup>9</sup>	60
	3O	64-657	93		3O	64-103 <sup>3</sup>	32		3O	61-662 <sup>9</sup>	59
	3Ps	40-670	175		3Ps	41-359	43		3Ps	39-462	154
			<b>519</b>				<b>238</b>				<b>408</b>
1999	3L	41-692	177	2007	3L	61-702 <sup>4</sup>	137	2015	3L	65-685	56
	3N	40-659	82		3N	44-636	79		3N	39-674	72
	3O	62-679	86		3O	64-719	79		3O	63-628	74
	3Ps	41-870	171		3Ps	39-601	176		3Ps	38-667	173
			<b>516</b>				<b>471</b>				<b>375</b>
2000	3L	61-681	134	2008	3L	60-684 <sup>5</sup>	122				
	3N	45-664	81		3N	40-623	71				
	3O	61-694	83		3O	64-704	80				
	3Ps	39-608	169		3Ps	39-632	167				
			<b>467</b>				<b>440</b>				
2001	3L	34-695	154			A. Needler <sup>6</sup>					
	3N	40-650	79								
	3O	74-699	79	2009	3L	61-694 <sup>7</sup>	142				
	3Ps	38-609	171		3N	44-668	78				
			<b>483</b>		3O	64-674	79				
					3Ps	40-678	173				
							<b>472</b>				
2002	3L	42-710	146	2010	3L	59-715	130				
	3N	40-641	79		3N	39-714	78				
	3O	63-628	79		3O	60-673	80				
	3Ps	37-625	175		3Ps	39-568	175				
			<b>479</b>				<b>463</b>				
2003	3L	62-698	156	2011	3L	57-723	144				
	3N	39-681	79		3N	40-673	79				
	3O	63-726	79		3O	63-716	78				
	3Ps	40-675	174		3Ps	37-622	172				
			<b>488</b>				<b>473</b>				

<sup>1</sup>CCGS Teleost conducted 68 sets in sub-Div. 3Ps.

<sup>2</sup>CCGS A. Needler conducted 14 sets in sub-Div. 3Ps.

<sup>3</sup>CCGS A. Needler conducted 47 sets in Divs 3NO.

<sup>4</sup>CCGS Teleost conducted 40 sets in Div. 3L.

<sup>5</sup>CCGS Teleost conducted 43 sets in Div. 3L.

<sup>6</sup>CCGS A. Needler became the primary ship for spring surveys in 2009.

<sup>7</sup>CCGS Teleost conducted 81 sets in Div. 3L.

<sup>8</sup>CCGS Teleost conducted 63 sets in Div. 3L.

<sup>9</sup>CCGS Teleost conducted all sets in Divs 3NO.

Table 4a. Number of successful fall survey sets in Division 2G over 1996-1999. (Dates of first and last set in each year listed under survey year.)

Stratum	Area (sq. n.nmi.)	Depth (m)	Survey Year			
			1996	1997	1998	1999
			Se 30 - Oc 8	Oct 1-9	Oct 1-7	Oct 12-27
901	1213	201-300	4	8	1	5
902	120	301-400	2	3	2	2
903	80	401-500	0	3	2	2
904	153	501-750	0	2	2	2
905	164	751-1000	0	1	2	2
906	229	1001-1250	0	2	2	2
907	360	1251-1500	0	0	1	2
908	585	201-300	2	4	2	3
909	2773	<=200	8	0	2	12
910	2339	<=200	6	0	2	9
911	692	201-300	3	5	3	3
912	73	301-400	0	2	2	2
913	62	401-500	0	2	2	2
914	113	501-750	0	2	2	2
915	96	751-1000	0	0	1	0
916	146	1001-1250	0	1	2	0
917	165	1251-1500	0	0	1	0
918	515	1251-1500	1	0	0	0
919	316	1001-1250	1	2	0	0
920	172	751-1000	1	1	0	0
921	142	501-750	1	2	1	2
922	186	401-500	0	2	1	2
923	186	301-400	2	2	0	2
924	756	201-300	2	5	0	3
925	1804	<=200	4	0	1	4
926	433	201-300	2	3	0	2
927	832	301-400	2	6	0	2
928	783	401-500	3	3	0	2
929	1261	501-750	3	8	0	0
<b>Annual Total</b>	16749		47	69	34	69

Table 4b. Number of successful fall survey sets in Division 2H over 1996-2015. (Dates of first and last set in each year listed under survey year.)

NAFO Division 2H

Stratum	Area (sq. n. miles)	Depth (m)	Survey Year																											
			1996		1997		1998		1999		2001		2004		2006		2008		2010		2011		2012		2013		2014		2015	
			Sep 18-30	Oct 9-19	Oct 7-30	Oct 22-No 9	Dec 8-15	Oct 8-26	Oct 5-20	Oct 4-18	Oct 7-23	Oct 12-27	Oct 7-26	Oct 7-25	Oct 6-13	Oct 18-24														
930	1028	<=200	4	0	5	4	3	5	4	3	3	4	5	5	3	5														
931	276	201-300	2	2	2	2	0	2	2	2	2	2	2	2	2	2														
932	55	301-400	2	2	2	2	0	2	2	2	2	2	2	2	2	2														
933	50	501-750	2	2	2	2	0	2	2	2	2	3	2	2	2	2														
934	78	501-750	2	2	2	2	0	2	2	2	2	2	2	2	2	2														
935	96	751-1000	1	2	2	2	0	2	2	2	2	2	2	2	2	0														
936	78	1001-1250	1	2	2	1	2	2	2	2	2	1	2	2	0	0														
937	94	1251-1500	1	2	2	1	2	2	2	2	0	1	0	0	0	0														
938	191	1251-1500	2	2	2	2	2	2	2	2	2	2	2	2	0	0														
939	130	1001-1250	2	2	1	2	1	2	1	2	2	2	2	2	0	0														
940	97	751-1000	2	2	2	2	1	2	2	2	2	2	2	2	0	0														
941	89	501-750	2	2	2	2	2	2	2	1	2	2	2	2	2	0														
942	55	501-750	2	2	2	2	2	2	2	2	2	2	2	1	2	2														
943	354	201-300	2	2	2	2	0	2	2	2	2	2	2	2	2	2														
944	860	301-400	3	6	4	4	1	4	4	3	3	4	5	6	5	5														
945	461	501-750	2	3	2	2	2	2	2	2	2	2	2	2	2	2														
946	721	501-750	3	5	4	4	3	4	3	0	2	3	4	4	4	0														
947	227	501-750	2	2	2	2	2	2	2	2	2	2	2	2	2	0														
948	246	501-750	2	2	2	1	2	1	2	2	0	1	2	2	2	2														
949	206	301-400	2	2	0	1	2	2	1	0	1	1	0	0	0	0														
950	261	201-300	2	2	0	2	2	2	2	1	0	0	0	0	0	0														
951	234	501-750	2	2	2	2	2	2	2	2	2	2	2	2	2	2														
952	177	301-400	2	2	2	2	2	2	2	1	2	2	2	2	2	2														
953	291	201-300	2	2	2	2	2	2	2	2	2	2	2	2	2	2														
954	971	<=200	4	0	5	4	3	5	4	3	3	4	5	5	5	5														
955	389	201-300	2	3	2	2	2	2	2	1	2	2	2	2	2	2														
956	1051	<=200	3	0	5	4	4	5	4	3	3	5	6	6	6	6														
957	1371	<=200	5	0	7	7	5	7	6	5	5	6	7	6	7	4														
958	294	201-300	2	2	2	2	2	2	2	2	2	2	2	2	2	2														
959	178	301-400	2	2	2	2	2	2	2	2	2	2	2	2	2	2														
960	107	501-750	2	2	2	2	2	2	2	2	2	2	2	2	2	2														
961	211	501-750	2	2	2	2	2	2	2	2	2	2	2	2	2	0														
962	242	751-1000	2	2	2	2	0	2	2	2	2	2	2	2	0	0														
963	265	1001-1250	2	2	2	2	0	2	2	2	2	2	2	2	0	0														
964	342	1251-1500	2	2	2	2	0	2	2	2	2	2	2	2	0	0														
<b>Total</b>	<b>11776</b>		<b>77</b>	<b>71</b>	<b>83</b>	<b>81</b>	<b>57</b>	<b>87</b>	<b>81</b>	<b>69</b>	<b>70</b>	<b>79</b>	<b>84</b>	<b>83</b>	<b>66</b>	<b>53</b>														

Table 4c. Number of successful fall survey sets in Division 2J over 1995-2015. (Dates of first and last set in each year listed under survey year.)

NAFO Division 2J

Stratum	Area (sq. n. miles)	Depth (m)	Survey Year																				
			1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
			De 4 - Ja 22	Oc 22 - No 7	Oc 19 - No 4	Oc 20 - No 4	Nov 6-25	Nov 1-14	No 21 - Dec 1	De 7 - Ja 12	Dec 1-17	Oc 27 - No 1	No 17-De 16	Oc 20-No 14	Nov 1-30	No 7 - De 7	Nov 5-23	Oc 21-No 15	Oc 28-No 26	Oc 14-No 24	Oc 25-No 18	Oc 18-No 14	Oc 8-No 14
201	633	<=200	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
202	621	201-300	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
203	487	301-400	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
204	288	501-750	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
205	1594	<=200	0	6	6	6	6	6	6	6	6	6	6	6	5	5	6	4	6	6	6	6	
206	1870	<=200	5	7	7	7	7	7	7	7	7	7	7	6	6	7	5	7	7	6	7	8	
207	2264	<=200	8	9	9	9	9	9	9	9	9	9	8	9	9	8	7	5	8	9	5	6	
208	588	301-400	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
209	680	201-300	2	3	3	3	3	3	3	3	3	3	2	3	3	2	3	2	3	3	3	3	
210	1035	201-300	3	4	4	4	4	4	4	4	4	4	4	4	3	3	4	3	4	4	4	4	
211	251	301-400	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	
212	557	501-750	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	
213	1583	201-300	6	6	6	6	6	6	6	6	6	6	6	6	5	5	6	5	6	6	5	7	
214	1341	201-300	4	5	5	5	5	5	5	5	5	5	5	4	5	5	5	4	5	5	5	5	
215	1302	201-300	2	5	5	5	5	5	5	5	5	5	5	5	4	4	4	4	4	5	5	4	
216	360	301-400	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
217	241	501-750	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
218	362	501-750	3	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
219	283	751-1000	2	2	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	
220	303	1001-1250	0	2	2	2	1	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	
221	330	1251-1500	0	2	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	
222	450	301-400	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	
223	158	501-750	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
224	228	501-750	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
225	195	1001-1250	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
226	201	1251-1500	0	2	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	
227	598	501-750	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
228	2196	201-300	7	8	8	8	8	8	8	7	8	8	8	8	7	7	8	6	8	8	8	8	
229	536	301-400	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
230	185	501-750	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
231	186	751-1000	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
232	228	1001-1250	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
233	237	1251-1500	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
234	530	201-300	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
235	414	501-750	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
236	193	751-1000	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	
237	733	<=200	3	3	3	3	3	3	4	3	3	3	3	3	2	2	3	0	3	3	2	2	
238	778	<=200	0	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	2	2	2	2	
239	120	501-750	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
240	133	501-750	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
<b>Total</b>	25272		84	117	117	118	115	117	120	117	116	115	117	117	115	99	108	113	99	115	116	110	114

Table 4d. Number of successful fall survey sets in Division 3K over 1995-2015. (Dates of first and last set in each year listed under survey year.)

NAFO Division 3K

Stratum	Area (sq. n. miles)	Depth (m)	Survey Year																				
			1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
			No 28 - Ja 25 Nov 7-26	No 4 - De 19 Nov 4-30	No 20 - De 1 No 14 - De 11 No 27 - De 11	No 1 - Ja 14 De 17 - Ja 31	No 13 - Fe 1 No 24 - Ja 28	No 6 - De 21 No 22 - De 16 to 11 - De 21	No 18 - De 13 No 15 - De 17 No 11 - De 19	No 12 - De 20 No 10 - De 18 No 11 - De 6	No 13 - De 13												
608	798	<=200	0	3	3	3	0	3	2	3	2	3	2	3	0	1	0	4	0	0	0	0	0
609	342	201-300	0	2	2	2	0	2	2	2	2	2	2	2	0	1	2	2	0	0	0	0	0
610	256	301-400	0	2	2	2	0	2	2	2	2	2	2	0	0	0	2	0	0	0	0	0	0
611	573	201-300	0	3	3	2	0	2	2	2	2	2	2	0	0	0	2	0	0	0	0	0	0
612	445	<=200	0	2	2	2	0	2	2	2	2	2	2	0	0	0	2	0	0	2	0	0	0
613	30	501-750	0	2	2	2	0	2	2	2	2	2	2	0	0	0	2	0	0	2	0	0	0
614	263	301-400	0	2	2	2	0	2	2	2	2	2	2	0	0	0	2	0	0	3	0	0	0
615	251	201-300	0	2	2	2	0	2	2	2	2	2	2	0	0	0	2	0	0	2	0	0	0
616	250	<=200	0	2	2	2	0	2	2	2	2	2	1	2	0	0	0	0	0	1	0	0	0
617	593	301-400	2	3	3	3	3	3	3	3	3	3	3	2	2	2	2	3	2	3	3	3	3
618	1347	<=200	5	6	6	4	6	6	3	6	4	6	6	5	6	5	5	5	3	2	6	5	6
619	1753	<=200	4	7	7	6	6	8	8	8	6	8	8	8	4	7	7	8	2	3	8	7	6
620	2545	201-300	3	11	11	11	11	11	11	11	11	8	11	11	7	3	10	11	8	10	10	11	11
621	2537	201-300	6	11	11	11	11	11	6	11	11	8	10	11	7	9	8	11	6	8	11	11	10
622	691	501-750	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	2	3	3	3	3	3
623	494	301-400	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
624	1105	201-300	4	5	5	5	5	5	5	5	5	5	5	5	3	4	5	4	5	5	5	5	5
625	888	301-400	3	4	4	4	4	4	4	4	4	4	4	4	2	4	4	3	3	3	4	4	4
626	1113	301-400	4	5	5	5	5	5	4	5	5	4	5	5	2	4	4	5	4	5	5	5	4
627	1255	501-750	5	5	5	5	5	5	3	5	5	5	4	5	4	5	5	4	5	5	5	5	5
628	1085	301-400	5	5	5	5	5	5	3	5	5	5	5	3	3	4	5	4	6	5	5	5	5
629	495	301-400	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2
630	332	301-400	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2
631	1321	501-750	5	6	6	6	6	6	6	10	6	6	4	5	6	6	2	5	6	4	6	3	6
633	2067	301-400	8	9	9	9	9	9	9	9	9	9	9	8	9	5	8	9	7	8	5	9	9
634	1555	201-300	7	7	7	7	7	7	7	7	5	2	7	6	7	2	6	7	5	7	4	7	7
635	1274	201-300	6	5	5	5	5	5	5	5	5	2	3	1	2	5	5	5	5	4	5	3	3
636	1455	201-300	7	6	6	6	6	6	6	6	6	3	5	3	3	4	6	6	6	6	4	6	7
637	1132	201-300	5	5	5	5	5	5	1	5	5	5	5	5	4	3	4	4	5	5	4	5	5
638	2059	301-400	9	9	9	9	8	5	8	9	9	9	9	5	9	5	8	9	9	8	6	9	9
639	1463	301-400	7	6	6	6	7	3	5	6	6	6	3	5	3	6	3	6	6	6	6	6	6
640	69	501-750	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
641	230	501-750	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
642	418	751-1000	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
643	733	1001-1250	3	3	3	3	3	3	3	3	3	3	3	3	3	0	3	3	2	3	3	3	3
644	474	1251-1500	2	2	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2
645	216	501-750	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
646	325	501-750	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
647	360	751-1000	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2
648	228	1001-1250	0	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2
649	212	1251-1500	0	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2
650	134	501-750	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
651	359	501-750	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
652	516	751-1000	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
653	531	1001-1250	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
654	479	1251-1500	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2
<b>Total</b>	<b>37051</b>		<b>131</b>	<b>175</b>	<b>175</b>	<b>171</b>	<b>154</b>	<b>159</b>	<b>165</b>	<b>175</b>	<b>168</b>	<b>151</b>	<b>167</b>	<b>154</b>	<b>129</b>	<b>108</b>	<b>143</b>	<b>173</b>	<b>125</b>	<b>141</b>	<b>147</b>	<b>154</b>	<b>151</b>



Table 4f. Number of successful fall survey sets in Division 3M over 1995-2007. Shaded cells indicate strata not included in the survey design after 1996. (Dates of first and last set in each year listed under survey year.)

Stratum	Area (sq. n.nmi.)	Depth (m)	Survey Year																		
			1996	1997	1998	1999	2000	2001	2002	2003	2006	2007									
			Se 25 - De 4	Dec 1-15	Dec 9-13	Dec 11-12	Oct 24-29	Oct 8-13	Oct 24 - No 5	Jan 13-18 (2 No 26 - De 2	Oct 16-29										
501	342	<=146	2																		
502	838	147-183	6																		
503	628	184-256	4																		
504	348	184-256	2																		
505	703	184-256	5																		
506	496	184-256	3																		
507	822	257-366	5																		
508	646	257-366	4																		
509	314	257-366	2																		
510	951	257-366	6																		
511	806	257-366	5																		
512	670	367-549	4																		
513	249	367-549	2																		
514	602	367-549	4																		
515	666	367-549	3																		
516	634	550-731	4																		
517	216	550-731	2																		
518	210	550-731	2																		
519	414	550-731	3																		
528	530	732-914	2	3	3	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
529	488	915-1097	2	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
530	1134	1098-1280	2	7	7	5	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
531	203	1281-1463	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
532	238	915-1097	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
533	98	732-914	2	2	2	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
534	486	915-1097	2	3	3	0	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3
535	92	1098-1280	2	2	2	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
536	112	1281-1463	2	2	2	0	2	2	2	2	2	2	2	2	2	2	2	2	0	2	2
<b>Total</b>	13936		86	26	26	12	26	26	26	26	26	26	26	26	26	26	26	23	26	26	26



Table 4g. Number of successful fall survey sets in Division 3N over 1995-2015. Shaded cells indicate strata not included in the survey design after 2010. (Dates of first and last set in each year listed under survey year.)

NAFO Division 3N

Stratum	Area (sq. n. miles)	Depth (m)	Survey Year																						
			1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015		
			Se 27 - Oc 2	No 25 - De 1	Oc 8 - No 5	Oc 16 - De 1	Nov 3-22	Oc 17 - De 5	Se 28 - Oc 2	Oct 13-26	Oc 21 - No 7	Nov 11-23	Oc 10-No 19	Oct 12-21	Oc9-No14	Oc 24 - No 1	Oc 24-No 12	Oc 12-De 12	Oc 13-No 20	Oc 11- No 5	Se 29-Oc 18	Ja 17	Oc 7-30		
357	164	275-366	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2		
358	225	184-274	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2		
359	421	92-183	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2		
360	2992	56-91	17	6	9	8	8	8	8	8	8	8	8	8	7	7	8	8	8	8	8	0	8		
361	1853	56-91	11	5	5	5	5	5	5	5	5	5	5	5	4	4	5	5	5	5	5	0	4		
362	2520	56-91	5	6	7	7	7	7	7	7	7	7	7	7	6	6	7	7	7	7	7	0	7		
373	2520	56-91	5	7	7	7	6	7	7	7	7	7	7	6	6	6	7	7	7	7	7	0	7		
374	931	56-91	2	2	3	3	3	3	3	3	3	3	3	2	3	2	3	3	3	3	3	0	3		
375	1593	<=55	9	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	0	4		
376	1499	<=55	9	4	5	4	4	4	4	4	4	4	4	4	3	3	4	4	4	4	4	0	4		
377	100	92-183	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2		
378	139	184-274	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	0	2		
379	106	275-366	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2		
380	116	275-366	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2		
381	182	184-274	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2		
382	647	92-183	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2		
383	674	56-91	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2		
723	155	367-549	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2		
724	124	550-731	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	0	2		
725	105	367-549	2	2	2	2	2	2	2	2	1	2	2	2	2	2	1	2	2	2	2	0	2		
726	72	550-731	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	0	2		
727	160	367-549	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2		
728	156	550-731	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2		
752	134	732-914	0	0	0	2	0	2	2	2	0	0	0	0	2	0	0	1							
753	138	915-1097	0	0	0	2	0	2	2	2	0	0	1	0	2	0	1								
754	180	1098-1280	0	1	0	2	0	2	2	2	0	0	0	0	2	0	0	2							
755	385	1281-1463	0	0	0	2	0	2	2	2	0	0	0	0	2	0	0	0							
756	106	732-914	0	0	0	2	0	2	2	2	0	0	2	0	2	0	1	0							
757	102	915-1097	0	0	0	2	0	2	2	2	0	0	2	0	2	0	0	0							
758	99	1098-1280	0	0	0	2	0	2	2	2	0	0	2	0	3	0	0	0							
759	127	1281-1463	0	0	0	2	0	2	2	2	0	0	2	0	2	0	1	0							
760	154	732-914	0	0	0	2	0	2	2	2	0	0	2	0	2	0	2	0							
761	171	915-1097	0	0	0	2	0	2	2	2	0	0	2	0	2	0	2	0							
762	212	1098-1280	0	0	0	0	0	2	2	2	0	0	2	0	2	0	2	0							
763	261	1281-1463	0	0	0	0	0	2	2	2	0	0	2	0	2	0	2	0							
<b>Total</b>	19523		90	67	74	90	68	94	94	94	70	69	86	70	94	64	75	72	70	70	70	3	69		

Shaded cells indicate strata not included in the survey design after 2010. (Dates of first and last set in each year listed under survey year.)

Table 4h. Number of successful fall survey sets in Division 30 over 1995-2015

NAFO Division 30

Stratum	Area (sq. n.miles)	Depth (m)	Survey Year																				
			1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
			Se 26 - Oc 2 No 24 - De 1	Se 26 - Oc 1 Oc 10 - De 1	Se 26 - Oc 1 Oc 13 - No 1	Se 22 - Oc 1 Oct 5-16	Se 23 - Oc 2 Oc 31 - No 1	Oct 4-17	Se 30 - Oc 9 Oc 6-31	Oct 3-20	Oct 2-25 Se 30-Oc 12	Se 29-Oc 17	Se 30-Oc 10 Se 19-29	Se 25-Oc 16									
329	1721	92-183	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	5	5	5	0	5
330	2089	56-91	5	6	6	6	6	6	6	6	7	6	6	6	5	7	6	6	6	6	6	0	6
331	456	56-91	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2
332	1047	92-183	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0	3
333	147	184-274	2	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2
334	96	275-366	2	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2
335	58	275-366	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2
336	121	184-274	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	0	2
337	948	92-183	2	2	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	0	3
338	1898	56-91	5	2	5	5	5	5	5	5	5	5	4	5	5	6	5	5	5	5	5	0	5
339	585	92-183	2	3	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2
340	1716	56-91	4	5	5	5	7	5	5	5	5	5	5	5	3	5	6	5	5	5	5	0	5
351	2520	56-91	7	6	7	7	6	7	7	7	7	7	7	7	6	7	6	7	7	7	7	0	7
352	2580	56-91	17	5	6	7	7	7	7	7	7	7	8	7	6	7	7	7	7	7	7	0	7
353	1282	56-91	3	2	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	0	4
354	474	92-183	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2
355	103	184-274	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2
356	61	275-366	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2
717	166	367-549	2	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2
718	134	550-731	2	0	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	0	2
719	76	367-549	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2
720	105	550-731	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2
721	76	367-549	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2
722	93	550-731	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2
764	105	732-914	0	0	0	2	0	2	2	2	0	2	0	2	0	2	2	2	2	2	2	0	2
765	124	915-1097	0	0	0	2	0	2	2	2	0	0	2	0	2	0	2	2	2	2	2	0	2
766	144	1098-1280	0	0	0	0	0	2	2	2	0	0	2	0	2	0	2	2	2	2	2	0	2
767	158	1281-1463	0	0	0	0	0	2	2	2	0	0	2	0	2	0	2	2	2	2	2	0	2
768	99	732-914	0	0	0	2	0	2	2	2	0	0	2	0	2	0	2	2	2	2	2	0	2
769	138	915-1097	0	0	0	2	0	2	2	2	0	0	2	0	2	0	2	2	2	2	2	0	2
770	128	1098-1280	0	0	0	0	0	2	2	2	0	0	2	0	2	0	2	2	2	2	2	0	2
771	175	1281-1463	0	0	0	0	0	2	2	2	0	0	2	0	2	0	2	2	2	2	2	0	2
772	135	732-914	0	0	0	2	0	2	2	2	0	2	0	2	0	2	0	2	2	2	2	0	2
773	128	915-1097	0	0	0	2	0	2	2	2	0	2	0	2	0	2	0	2	2	2	2	0	2
774	135	1098-1280	0	0	0	0	0	2	2	2	2	0	2	0	2	0	2	2	2	2	2	0	2
775	155	1281-1463	0	0	0	0	0	2	2	2	2	0	2	0	2	0	2	2	2	2	2	0	2
<b>Total</b>	20176		81	58	73	87	75	100	97	99	83	76	99	74	99	66	100	75	75	75	75	0	75

Shaded cells indicate strata not included in the survey design after 2010. (Dates of first and last set in each year listed under survey year.)

Table 5a. Number of successful spring survey sets in Division 3L over 1996-2015. (Dates of first and last set in each year listed under survey year.)

NAFO Division 3L - Spring

Stratum	Area (sq.n. miles)	Depth (m)	Survey Year																			
			1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
			Ma 30- Ju 27	Ju 4-26	Ju 6-30	Ju 6-29	Ju 3-29	Ma26- Ju24	Ma29- Ju22	Ju 4-26	Ju 4-26	Ju 11-29	Ju 10-29	Ju5- July12	Ju 4-30	Ma 21- Ju 23	Ju 7-25	Ma 29- Ju 22	Ma 31- Ju 19	Ma 24- Ju 20	Ju 7-22	Ju 3-17
328	1519	92-183	7	6	5	5	5	5	5	5	5	4	5	5	1	5	5	6	6	4	0	
341	1574	92-183	7	6	5	6	5	5	5	5	5	4	5	5	3	5	5	5	5	4	0	
342	585	92-183	3	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	
343	525	92-183	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	
344	1582	184-274	7	5	6	5	4	5	5	4	5	4	4	5	2	5	5	3	3	3	2	
345	1432	275-366	6	5	6	5	4	5	5	5	4	5	5	4	4	5	3	5	3	5	4	
346	865	275-366	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	
347	983	184-274	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	2	
348	2120	92-183	10	8	8	8	8	7	7	7	7	7	7	6	6	7	5	7	5	6	7	
349	2114	92-183	9	8	8	7	8	7	7	7	6	6	7	6	7	6	7	7	5	7	0	
350	2071	56-91	9	7	6	6	8	7	7	7	7	6	7	7	6	7	7	7	7	7	6	
363	1780	56-91	8	6	6	6	7	6	6	6	6	5	6	6	5	6	6	6	6	6	0	
364	2817	92-183	13	9	11	9	10	9	9	9	9	8	9	9	8	9	9	7	9	9	3	
365	1041	92-183	5	4	5	4	2	3	3	3	3	3	3	2	3	3	3	2	3	3	2	
366	1394	184-274	5	6	5	4	2	5	5	5	5	5	4	4	5	4	5	0	5	5	2	
368	334	275-366	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
369	961	184-274	4	4	4	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	2	
370	1320	92-183	6	5	4	5	5	4	4	4	4	4	4	4	4	4	4	4	4	5	4	
371	1121	56-91	5	5	4	4	4	4	4	4	4	5	4	4	4	3	4	4	4	3	4	
372	2460	56-91	11	9	8	9	9	8	8	8	8	6	7	8	7	9	8	8	8	7	8	
384	1120	56-91	5	5	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	3	4	
385	2356	92-183	11	9	9	7	4	7	8	8	8	6	8	8	8	7	8	8	7	8	6	
386	983	184-274	4	4	4	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	0	
387	718	275-366	3	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	
388	361	275-366	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	
389	821	184-274	4	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	0	
390	1481	92-183	7	6	5	5	3	5	5	5	5	5	5	3	5	5	5	5	4	5	4	
391	282	184-274	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
392	145	275-366	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
729	186	367-549	2	3	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	
730	170	550-731	2	2	3	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	
731	216	367-549	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	
732	231	550-731	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	0	
733	468	367-549	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	
734	228	550-731	2	2	2	2	2	2	2	2	2	2	2	1	2	2	3	2	2	2	0	
735	272	367-549	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
736	175	550-731	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
784	268	<=55	0	0	2	2	0	2	2	0	2	0	0	0	0	0	0	0	0	0	0	
785	465	56-91	0	0	2	2	0	2	2	0	2	0	0	0	0	0	0	0	0	0	0	
786	84	92-183	0	0	2	2	0	2	0	0	2	0	0	0	0	0	0	2	0	0	0	
787	613	92-183	0	0	2	2	0	2	0	0	2	0	0	0	0	0	0	2	0	0	0	
788	261	92-183	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
789	72	275-366	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	
790	89	92-183	0	0	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	
791	227	184-274	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
792	50	367-549	0	0	0	2	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	
793	72	92-183	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
794	216	92-183	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	
795	164	184-274	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	
796	175	275-366	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	
797	98	92-183	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	
798	100	275-366	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	
799	72	92-183	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	
800	81	275-366	0	0	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	
<b>Total</b>	41918		188	158	163	177	134	154	146	156	151	133	141	137	122	142	130	144	132	134	135	56

Shaded cells indicate strata not included in the survey design after 2010. (Dates of first and last set in each year listed under survey year.)

Table 5b. Number of successful spring survey sets in Division 3N over 1996-2015. (Dates of first and last set in each year listed under survey year.)

NAFO Division 3N - Spring

Stratum	Area (sq. n.miles)	Depth (m)	Survey Year																			
			1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
			Ma 22-30	Ma 18 - Ju 4	Ja 24 - Ju 4	Ma 19 - Ju 7	Ma 23 - Ju 9	Ma 14 - Ju 6	Ma 13 - 29	Ma 18 - Ju 4	Ma 24 - Ju 8	Ma 22 - Ju 15	Ju 27-29	Ju 16-29	Ju 1 - 22	Ma 26-Ju 11	Ma 24-Ju 6	Ma 21-30	Ma 21 - Ju 3	Ma 11-24	Ju 5-17	Ma 21-Ju 3
357	164	275-366	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	
358	225	184-274	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	
359	421	92-183	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	
360	2992	56-91	11	9	12	11	10	10	10	10	10	9	6	10	8	10	10	10	10	10	6	
361	1853	56-91	7	5	7	7	6	6	6	6	7	4	6	5	6	6	6	6	6	4	5	
362	2520	56-91	9	7	10	9	9	9	9	9	8	4	9	9	8	9	9	9	9	5	7	
373	2520	56-91	9	7	10	9	9	9	9	9	9	0	9	8	8	9	9	9	9	5	7	
374	931	56-91	3	3	4	3	4	3	3	3	3	2	3	2	3	3	3	3	3	2	3	
375	1593	<=55	6	5	6	5	6	5	5	5	5	3	5	4	5	5	5	5	5	3	5	
376	1499	<=55	5	4	6	6	4	5	5	5	5	3	5	4	5	5	5	5	5	3	4	
377	100	92-183	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	
378	139	184-274	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	
379	106	275-366	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	
380	116	275-366	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	
381	182	184-274	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	
382	647	92-183	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	
383	674	56-91	2	2	3	2	3	2	2	2	2	0	2	2	2	2	2	2	2	2	2	
723	155	367-549	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	
724	124	550-731	2	2	2	2	2	2	2	2	2	0	2	1	2	2	2	1	2	2	2	
725	105	367-549	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	
726	72	550-731	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	
727	160	367-549	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	
728	156	550-731	2	1	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	
<b>Total</b>	17454		82	71	88	82	81	79	79	79	79	78	22	79	71	78	78	79	78	79	60	

Table 5c. Number of successful spring survey sets in Division 30 over 1996-2015. (Dates of first and last set in each year listed under survey year.)

NAFO Division 30 - Spring

Stratum	Area (sq. n. miles)	Depth (m)	Survey Year																			
			1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
			Ma 7 - 22	Ap 30 - Ma 17	Ma 12-30	Ma 11-28	Ma 11-Ju 5	Ap 29 - Ma 13	Ap 27 - Ma 14	Ma 8-15	Ma 12-24	Ma 9-22	Ju 25-30	Ma 3 - Ju 19	Ma 23-Ju 1	Ma 13-26	Ma 8-24	Ma 8-20	Ap 27-Ma 21	Ap 23- Ma 11	Ma 29-Ju 5	Ma 10-21
329	1721	92-183	6	6	7	6	5	5	5	5	5	5	0	5	5	5	5	5	5	3	5	
330	2089	56-91	8	7	8	7	7	7	7	7	7	7	9	7	7	7	7	7	7	7	4	6
331	456	56-91	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
332	1047	92-183	4	3	4	4	4	3	3	3	3	3	0	3	3	3	3	3	3	3	2	3
333	147	184-274	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
334	96	275-366	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
335	58	275-366	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
336	121	184-274	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
337	948	92-183	3	3	4	3	4	3	3	3	3	3	0	3	3	3	3	3	3	3	2	3
338	1898	56-91	7	6	7	7	6	6	6	6	6	6	7	6	6	6	6	6	6	6	3	5
339	585	92-183	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
340	1716	56-91	6	6	7	6	5	5	5	5	5	5	2	5	6	5	5	5	5	5	3	5
351	2520	56-91	8	8	10	9	8	8	8	8	8	8	4	8	8	8	8	8	8	8	5	7
352	2580	56-91	9	8	10	9	9	8	8	8	8	8	5	8	8	8	8	8	8	8	5	7
353	1282	56-91	5	4	5	5	5	4	4	4	4	4	3	4	4	4	4	4	4	4	2	3
354	474	92-183	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
355	103	184-274	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
356	61	275-366	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
717	166	367-549	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
718	134	550-731	2	2	3	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
719	76	367-549	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
720	105	550-731	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	1	2	2	2	2
721	76	367-549	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
722	93	550-731	2	2	2	2	2	2	2	2	2	2	0	2	2	2	3	2	2	2	2	2
<b>Total</b>	18552		86	81	93	86	83	79	79	79	79	79	32	79	80	79	80	78	79	79	59	74

Table 5d. Number of successful spring survey sets in sub-Division 3Ps over 1996-2015.

NAFO sub-Division 3Ps - Spring

Stratum	Area (sq. n.miles)	Depth (m)	Survey Year																		
			1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
293	159	57-92	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
294	135	93-183	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
295	209	184-274	0	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2
296	71	275-366	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
297	152	93-183	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
298	171	184-274	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
299	212	275-366	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
300	217	184-274	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
306	363	184-274	3	3	3	3	3	3	3	3	3	0	3	3	3	3	3	3	3	3	3
307	395	93-183	4	3	3	3	3	3	3	3	3	0	3	3	3	3	3	3	3	3	2
308	112	57-92	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
309	296	184-274	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
310	170	184-274	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
311	317	93-183	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2
312	272	57-92	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
313	165	184-274	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
314	974	<=56	8	7	7	8	7	7	8	7	8	8	4	8	6	8	7	8	8	8	7
315	827	57-92	6	6	7	7	7	7	7	7	7	0	7	5	7	7	7	7	7	7	6
316	189	185-274	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
317	193	93-183	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
318	129	185-274	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
319	984	550-731	8	8	8	8	8	8	8	8	8	0	8	8	8	8	8	8	8	8	7
320	1320	93-183	10	9	11	8	11	10	10	11	11	0	11	9	10	11	11	10	11	11	8
321	1189	57-92	9	9	10	9	10	9	10	10	10	0	10	10	9	10	10	10	10	10	8
322	1567	93-183	11	11	13	12	11	12	13	13	13	5	13	12	13	13	12	13	14	12	13
323	696	93-183	5	4	6	6	5	6	6	5	6	6	0	6	6	6	5	6	6	5	5
324	494	93-183	3	3	4	4	4	4	4	4	4	0	4	4	4	4	4	4	4	4	4
325	944	57-91	9	6	8	8	8	8	8	8	8	0	8	8	8	8	8	8	8	8	7
326	166	57-91	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
705	195	275-366	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
706	476	275-366	3	3	4	4	4	4	4	4	4	0	4	3	4	4	4	4	4	4	3
707	74	275-366	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
708	126	367-549	2	2	3	2	2	2	2	2	2	0	2	2	2	2	2	2	2	0	2
711	593	367-549	4	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	4	5
712	731	367-549	6	5	6	6	5	6	6	6	6	0	6	5	6	6	6	6	6	5	6
713	851	367-549	7	6	7	7	6	6	7	7	7	0	7	6	7	7	7	7	7	6	7
714	1074	367-549	9	7	9	9	9	9	9	9	9	0	9	9	8	9	9	9	9	7	7
715	128	275-366	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
716	539	275-366	5	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4
779	422	184-274	3	3	3	4	4	4	4	4	3	4	2	4	4	4	4	4	4	4	4
780	403	184-274	0	3	3	3	2	3	3	3	3	0	3	3	3	3	3	3	3	3	3
781	446	93-183	2	4	4	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4	4
782	183	93-183	0	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
783	229	57-92	0	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2
<b>Total</b>	19558		146	157	175	171	169	171	175	174	175	176	43	176	167	173	175	172	175	177	154

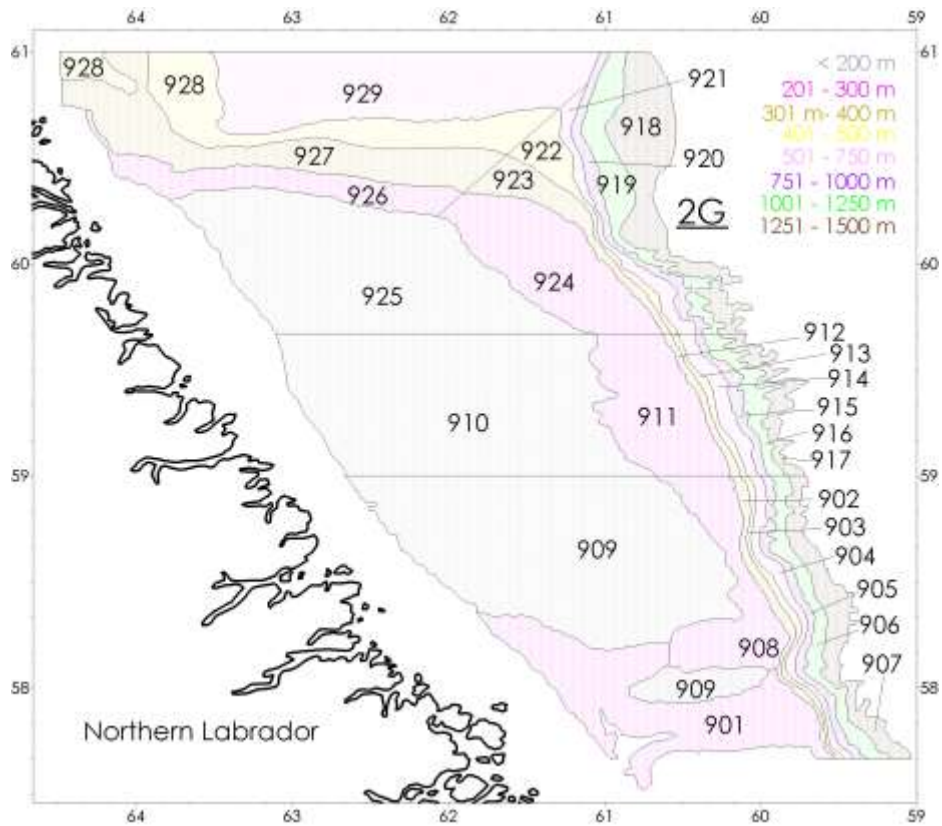


Fig 1. Stratification of Div. 2G

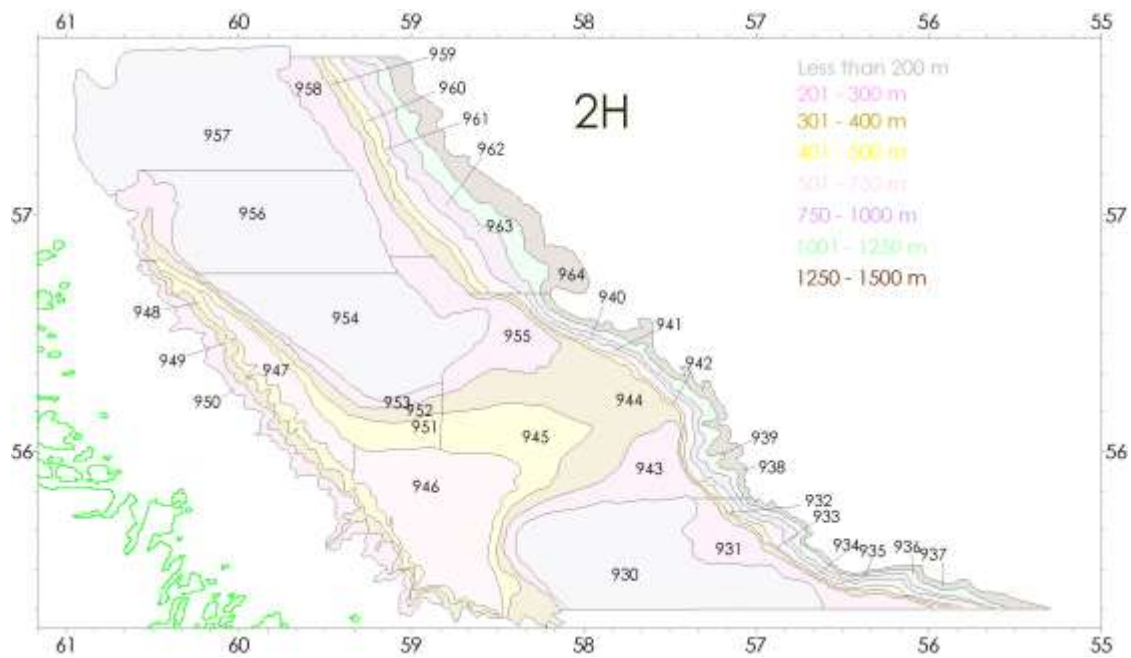


Fig 2. Stratification of Div. 2H

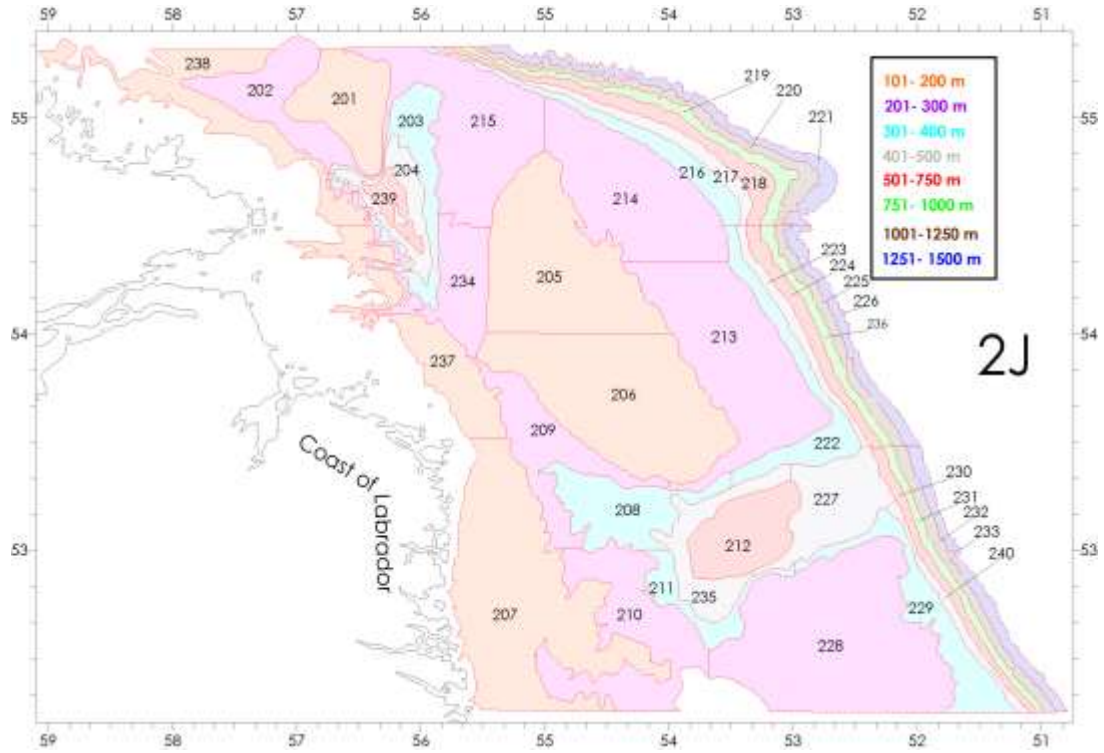


Fig 3. Stratification of Div. 2J

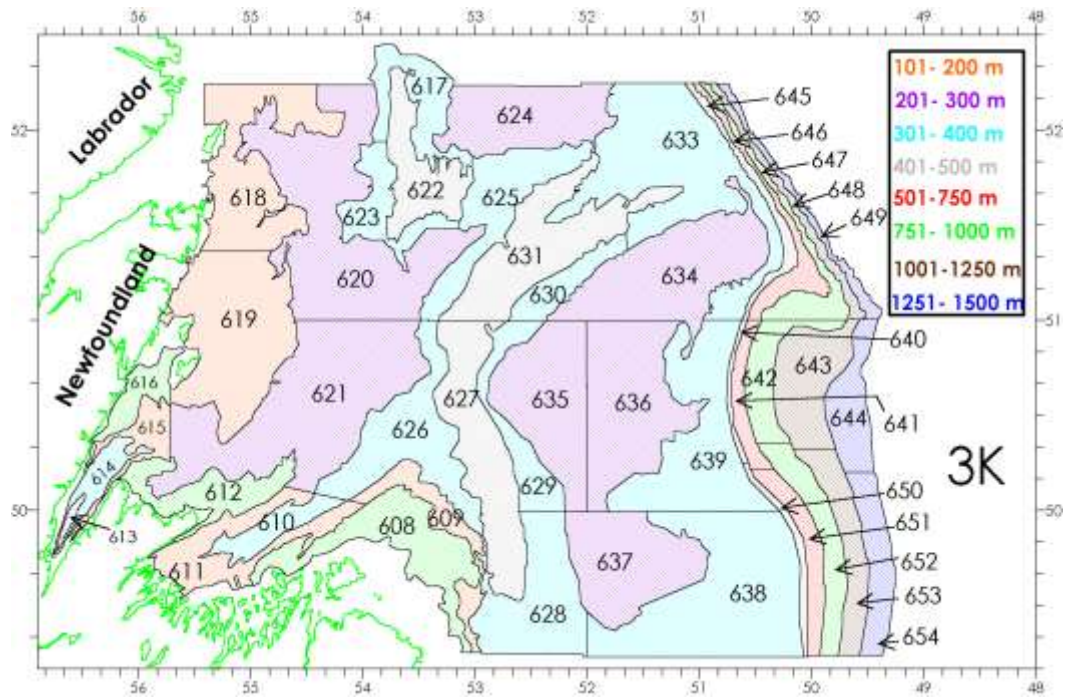


Fig 4. Stratification of Div. 3K



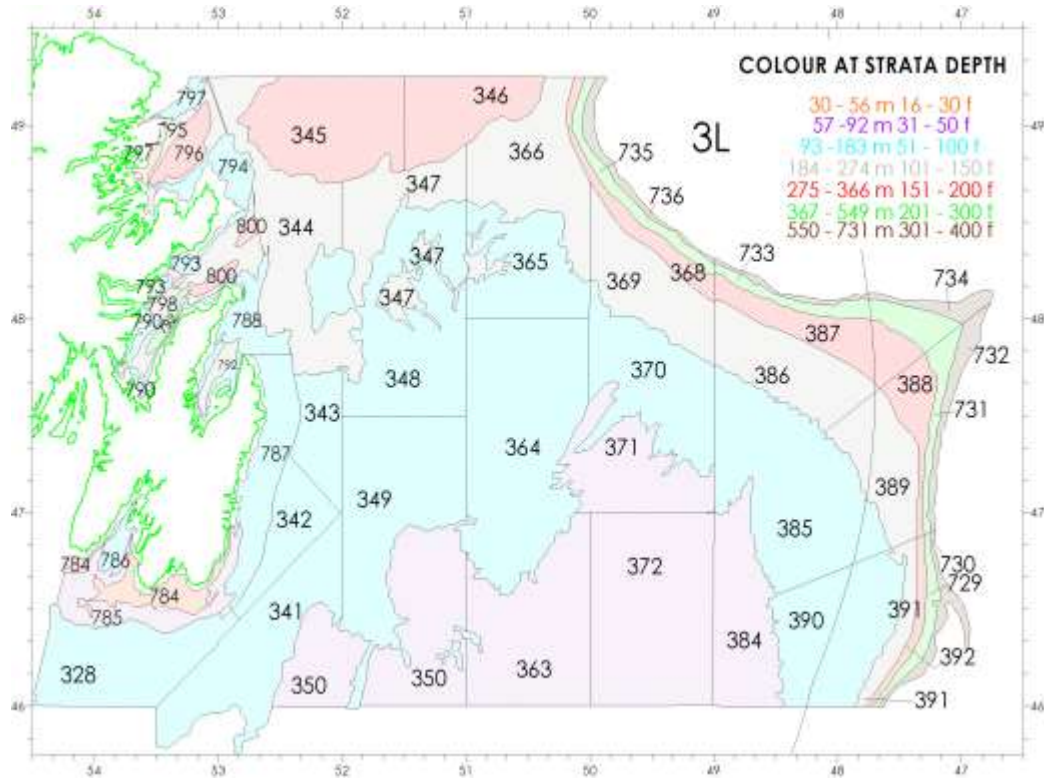


Fig 5. Stratification of Div. 3L

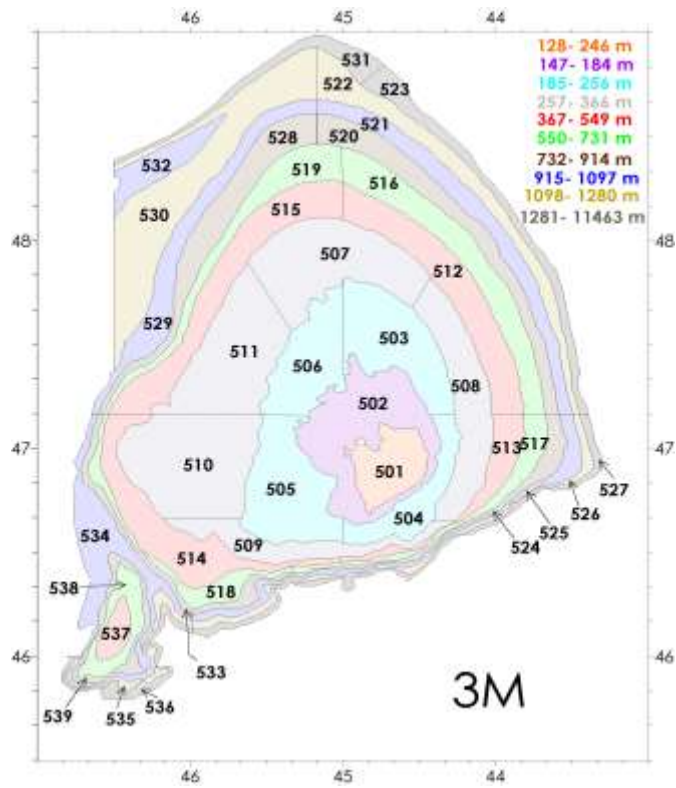


Fig 6. Stratification of Div. 3M

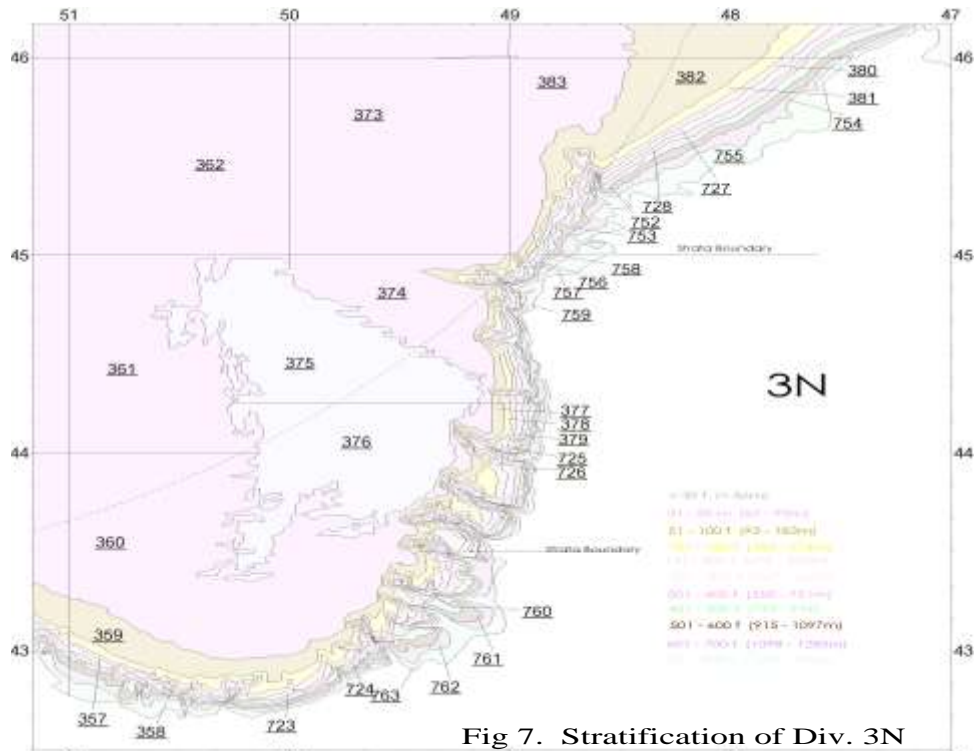


Fig 7. Stratification of Div. 3N

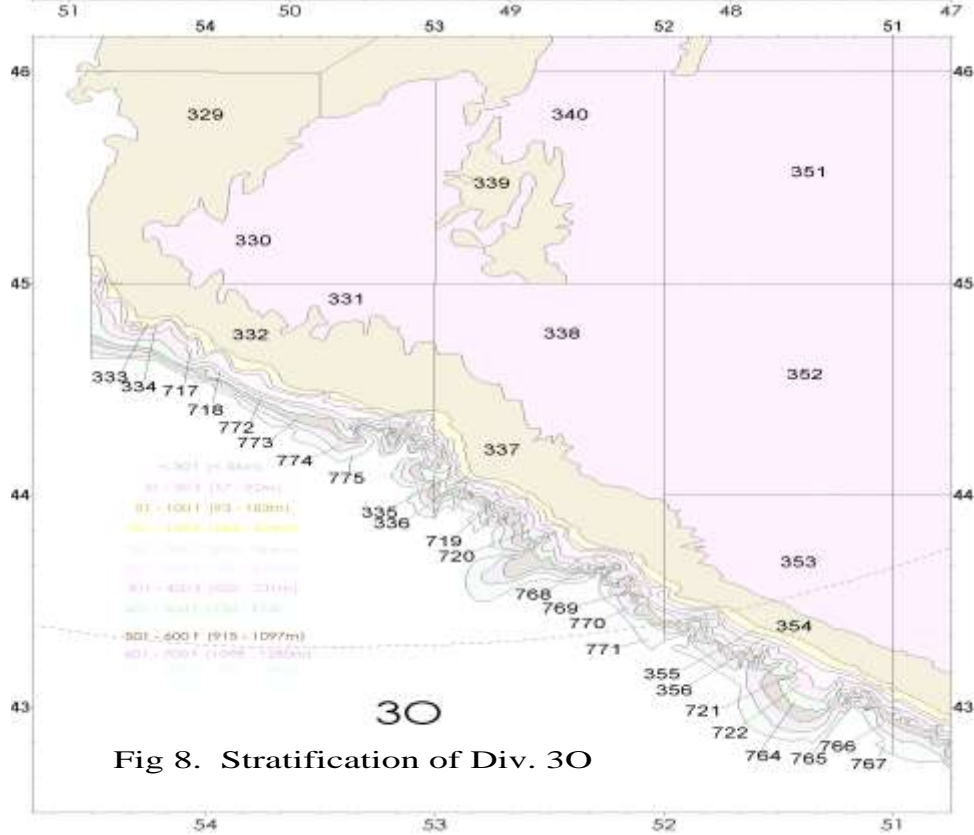


Fig 8. Stratification of Div. 3O

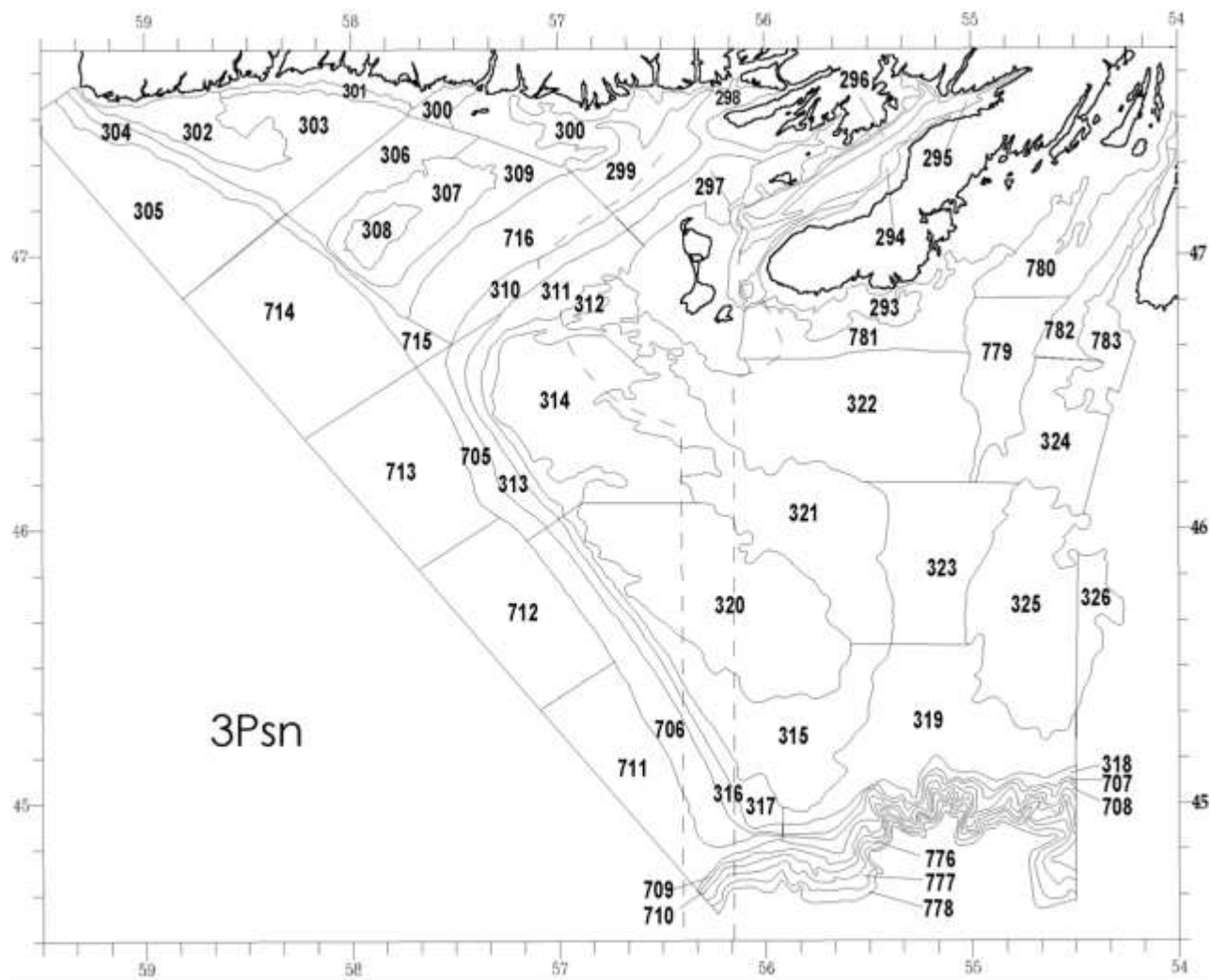


Fig. 9. Stratification of Div. 3P

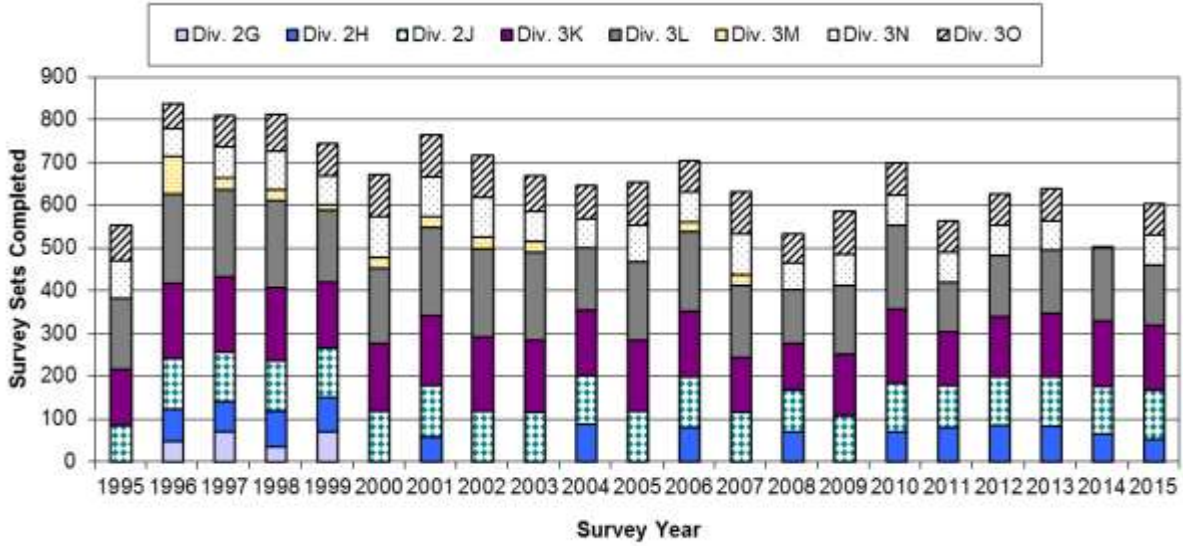


Figure 10a. Number of successful fall survey sets, by NAFO Division, 1995-2015.

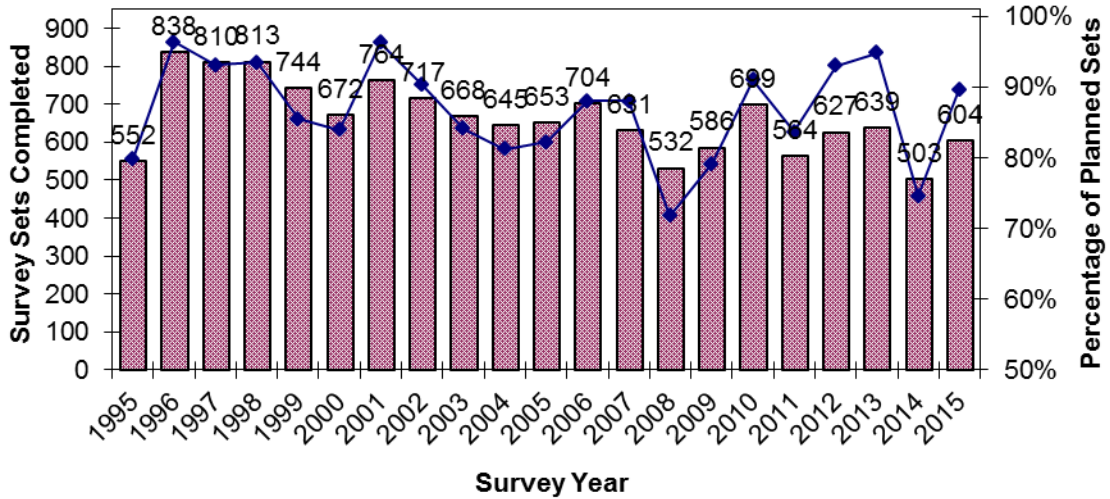


Figure 10b. Number of successful fall survey sets (bars with numbers), with percent of allocated sets realized (diamonds, joined line).

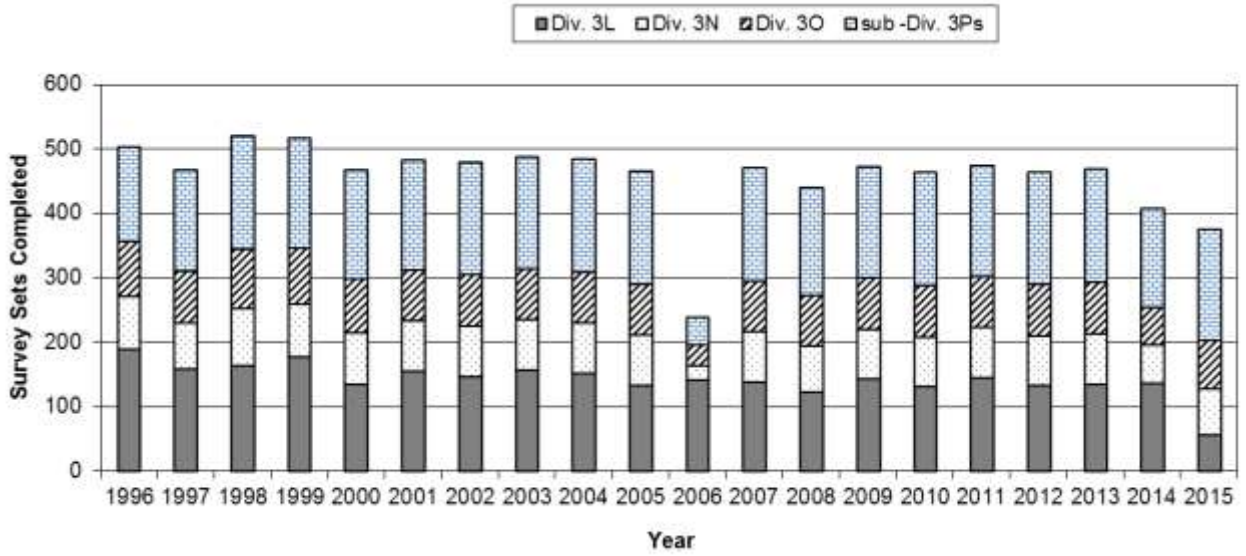


Figure 11a. Number of successful spring survey sets, by NAFO Division, 1996-2015.

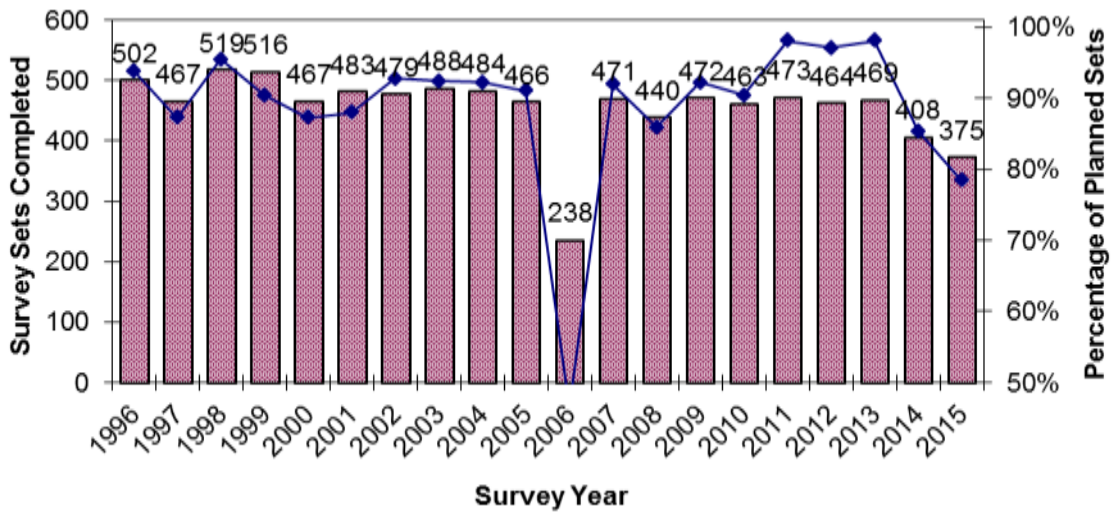


Figure 11b. Number of successful spring survey sets (bars), with percent of allocated sets realized (diamonds).

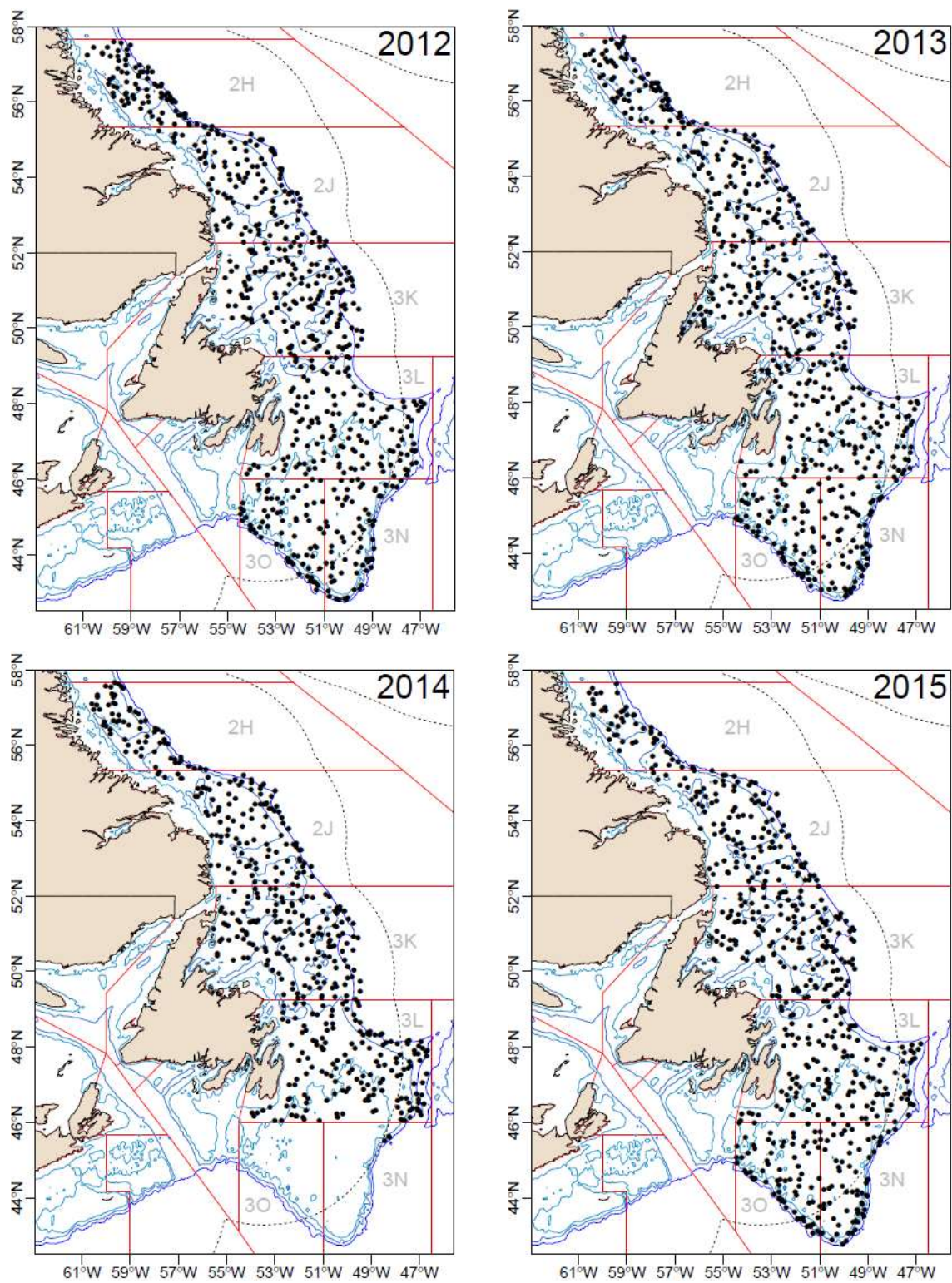


Fig. 12. Map of fall survey sets 2012-2015.

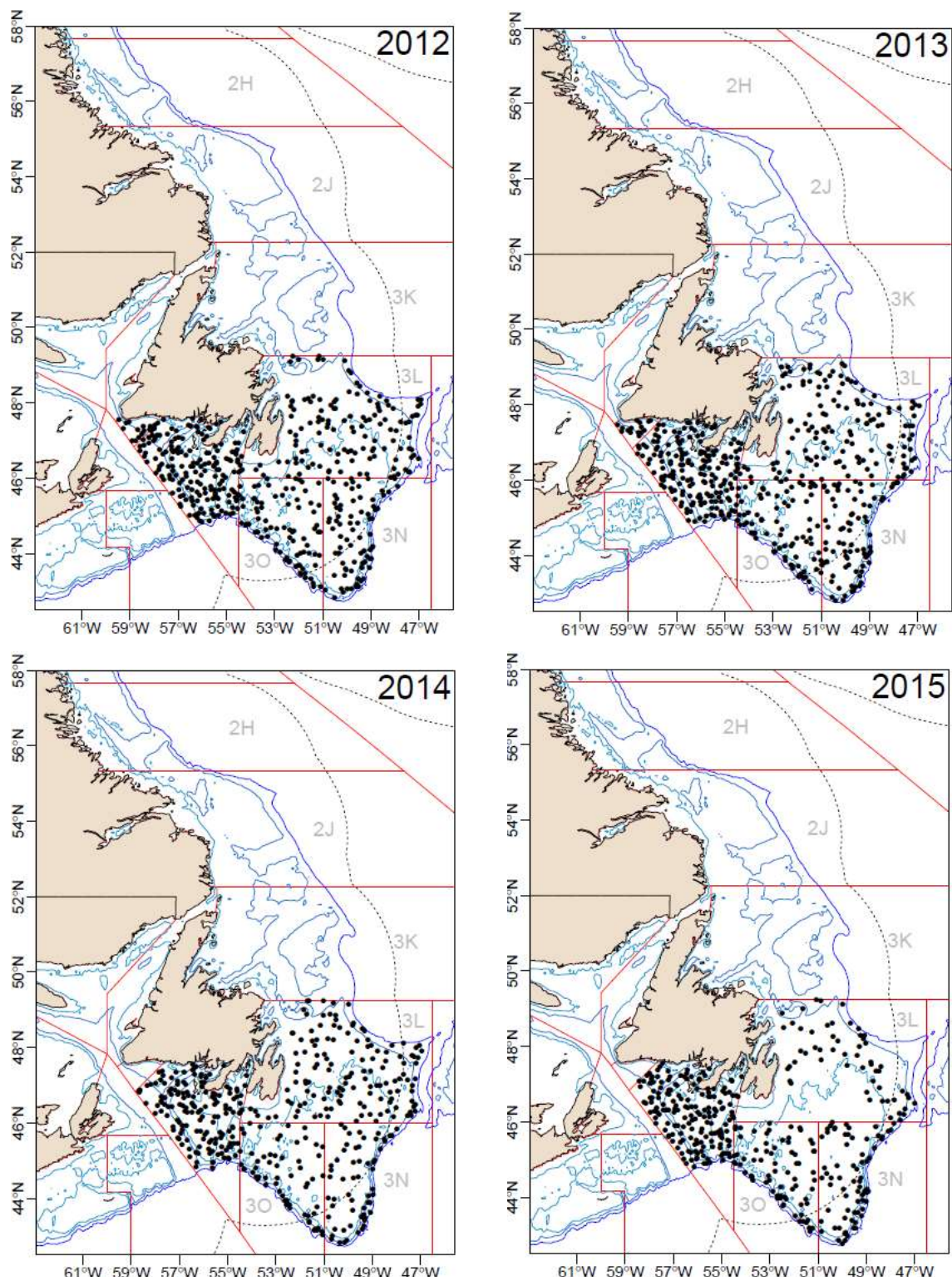


Fig. 13. Map of spring survey sets 2012-2015.