

ICELAND SCALLOP - HÖRPUDISKUR

Chlamys islandica

INTRODUCTION

Iceland scallop (*Chlamys islandica*) has been fished in several fjords and bays around Iceland since 1969, when the fisheries started in Ísafjarðardjúp with catch of 400 tonnes. In the following year, a fishery started in Breiðafjörður which has been the major fishing area ever since. From 1970 until the closure of the fisheries in 2003, a total of 254 thousand metric tonnes were landed from that area (Jónasson, 2007). Landings from other areas have been much lower with 18 and 14 thousand tonnes from Húnaflói and Ísafjarðardjúp, respectively. This report will focus only on the stock in Breiðafjörður, as no commercial fishing has taken place in other areas since 2002, apart from roughly 4 tonnes of diver-caught scallops in Ísafjarðardjúp during past two years (Figure 1).

The decline of the stock in Breiðafjörður in 1999-2003, which led to the closure of the fishery, is believed to be caused by several factors (Jonasson et al. 2007). The fishable stock consisted of few year classes and recruitment was scarce. High natural mortality caused by protozoan parasites (gray meat) was evident on all grounds, with annual mortality ratio as high as ~40% in the main fishing ground in the southern part of the fjord. The intensity of the mortality increased with scallop size and was most pronounced in the fishable part of the stock (>60 mm). Warmer waters and low levels of phytoplankton in addition to the disease caused general poor condition with smaller muscles and gonads. Total fishing mortality was also high and in combination with the above factors led to a collapse of the stock. During this period and earlier, there was a reduction in the distributional areas of the stock, especially the outer parts (Jónasson, 2007). In recent years infection levels have been low and muscle condition good.

COMMERCIAL FISHING

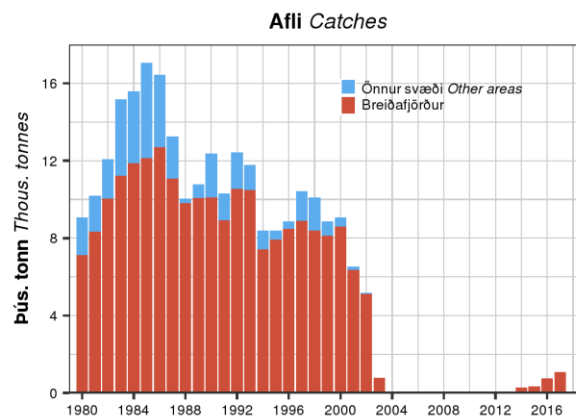


Figure 1. Total catch of Iceland scallop in Iceland and within Breiðafjörður.

Mynd 1. Heildarafli hörpudisks og afli í Breiðafirði.

No fishery for Iceland scallop has been conducted in Breiðafjörður since 2003, except for an experimental fishery during the last five winters (Table 1). The experimental fishery is covered later in this report.

At the start of the fisheries in the 1970s, the catch was between 2 000–4 000 tonnes but reached over 10 000 tonnes in 1982 (Figure 1). The catch was greatest in 1986 when 12 700 tonnes were fished. During 1996–2000, the average catch in Breiðafjörður was around 8 500 tonnes per year. The catch declined to 4 500 tonnes in the fishing year 2002/03, until the fishery was closed (Table 1).

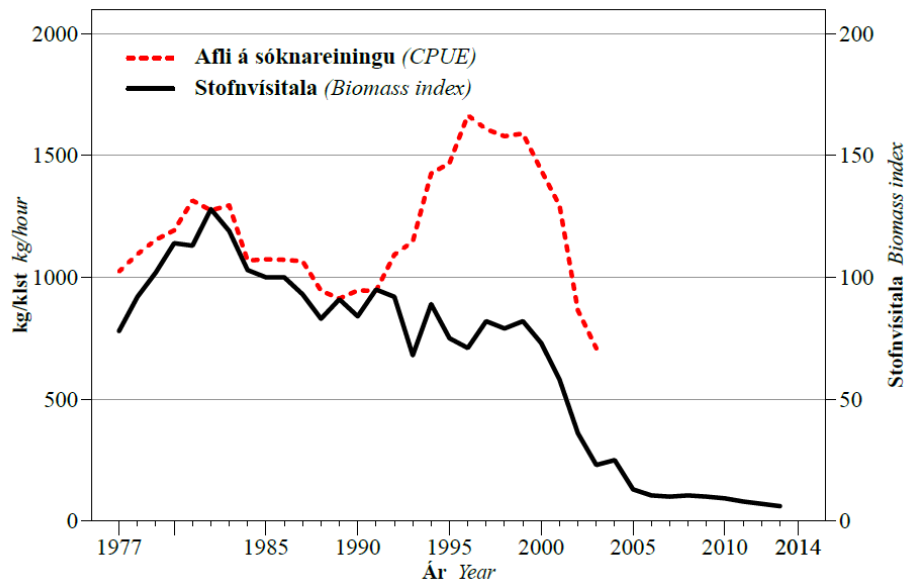


Figure 2. CPUE (kg/hour) and scallop biomass index from dredge survey in Breiðafjörður.

Mynd 2. Afli á sóknareiningu (kg/klst) og lífmassavísitala hörpudisks (mæling með plóg) úr Breiðafirði.

Catch per unit effort (CPUE, standardized to one dredge) pooled for all areas in Breiðafjörður, was relatively stable, during 1986–1990, but increased considerably from 1991 to 1996 (Figure 2). During the years 1996–1998, it was high, but then declined sharply until 2003. The increase in CPUE in the early 1990s coincided with changes in the scallop fishing gear, when the fleet changed from sledge dredges to more efficient roller dredges (Jonasson, et al. 2007). The decline coincided with drop in the survey index.

SURVEY INDICES

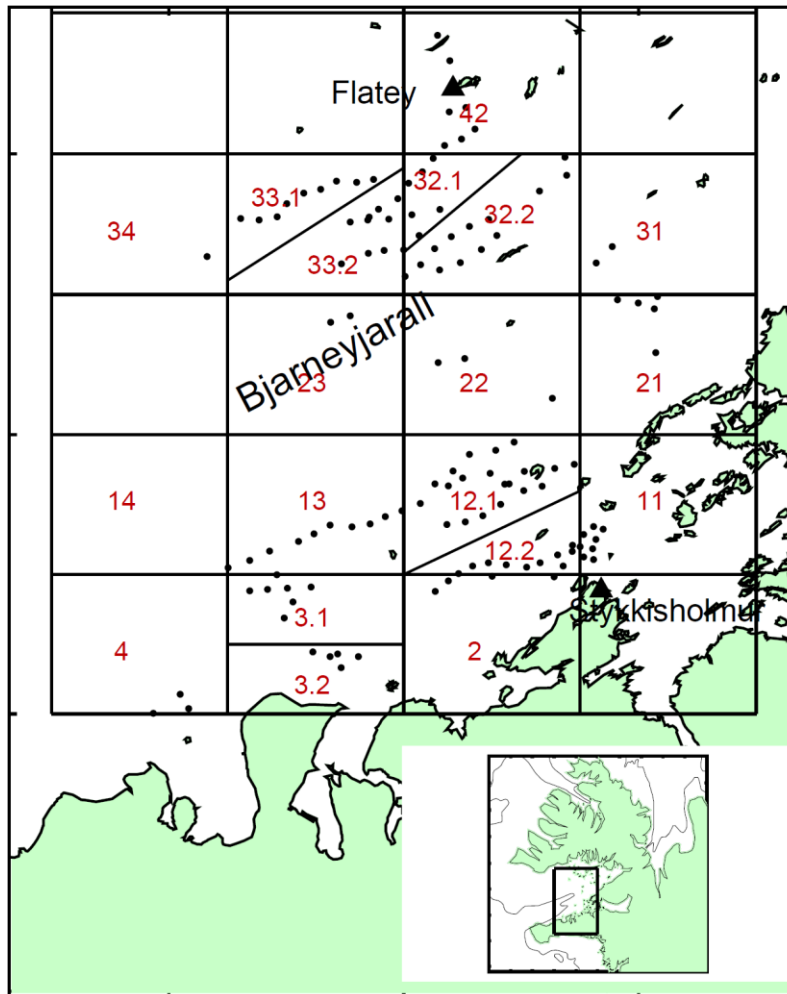


Figure 3. Overview of the dredge survey tows (dots) in Breiðafjörður, red numbers area the subareas used and the boxes the outlines of them. The town of Stykkishólmur and Flatey are marked with triangles.

Mynd 3. Yfirlitskort af stöðvum (punktar) úr plóg-leiðöngnum í Breiðafirði. Reitaskiptingin táknar undirsvæði sem notuð eru við stofnstærðarútreikninga (rauð númer). Stykkishólmur og Flatey eru merkt inn á kortið með þríhyrningum.

DREGDE SURVEY 1977-2013

Biomass survey with dredge was conducted by the Marine Research Institute (MRI) in Breiðafjörður almost from the onset of the fishery until 2013. In each survey, usually some 120 fixed standardized tows were taken. However, in later years fewer station were occupied with shorter tows. In 2012 the southern, and in 2013 the northern part of the fjord was surveyed. Prior to 1997, a 470 kg sledge dredge 1.5 m wide was used. In 1998, the sledge dredge was substituted with an 835 kg roller dredge 1.2 m wide (Guijarro Garcia, 2006). Both dredges were equipped with 60 mm steel rings. Earlier experiments on the sledge dredge had revealed an efficiency of 20% ($e = 0.2$). Comparative experiments between the roller and sledge dredge showed that the catch of scallops in roller dredge tows was on average 30% higher than in sledge tows, so e for the roller dredge was set at 0.26 ($n = 46$, MFRI, unpublished data).

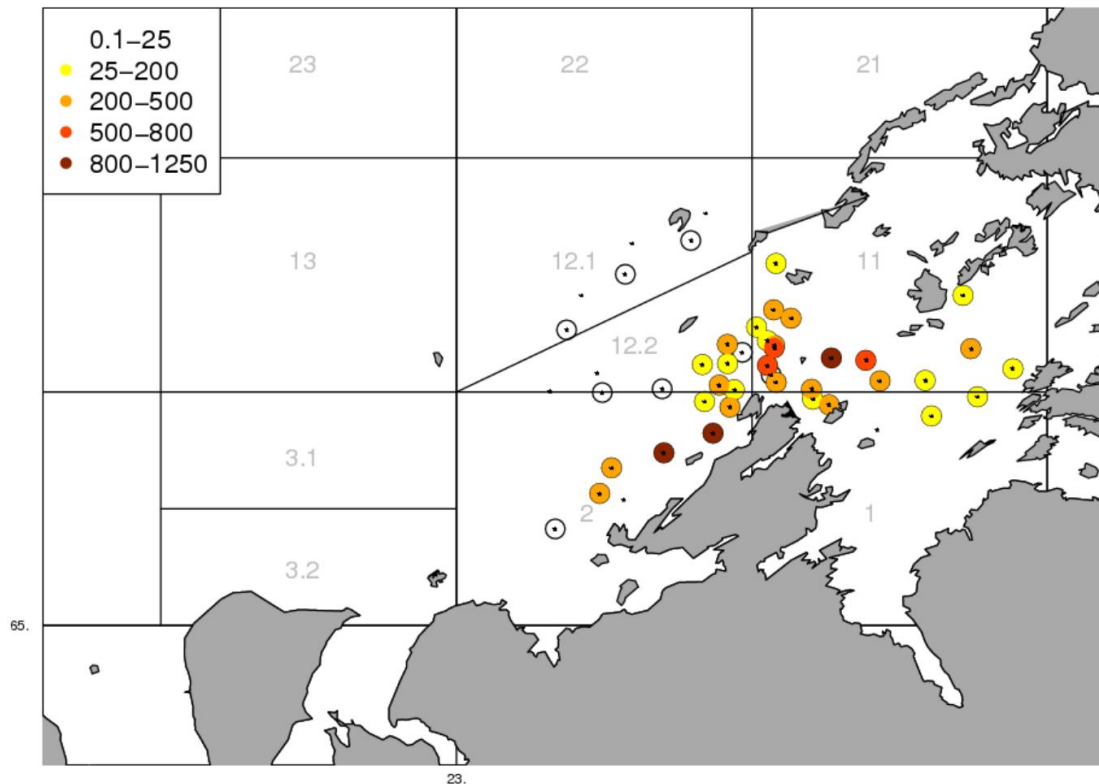


Figure 4. Catch of scallops (kg) per towed mile during dredge survey of the southern part of Breiðafjörður in 2012. Small dots represent stations with no scallops, but rings show stations with scallop catch according to the color scale. Black grids are the subareas marked with grey numbers.

Mynd 4. Afli hörpudisks (kg) á hverja dregna sjómílu í plógleiðangri í suðurhluta Breiðafjarðar árið 2012. Litlir punktar sýna stöðvar með engum hörpudisk og litir innan hringja tákna magn skv. kvarða. Reitaskipting er sýnd og heiti reita (gráar tölur).

Each survey tow covered approximately 0.4 nautical miles and the tow speed was 4 knots. For each tow, the total catch was weighed and a random subsample of approximately 25 kg taken. In each subsample, all live scallops were weighed and the height of about 100 specimens was recorded. The remaining scallops were counted and the numbers of cluckers (dead scallops attached on their hinges, both damaged and whole shells) were recorded.

The survey area was divided into subareas, based on a grid of squares of equal size. Squares positioned on the main scallop grounds were split into two subareas (Figure 3). The total region fished was divided into a northern area (subareas 31–42), north of Bjarneyjaáll (a trench bisecting the fjord from west to east), and a southern area (subareas 2–14), south of the trench. The size of the scallop beds in each subarea was based on estimates conducted at the beginning of the surveys in the early 1970s, where the total area was estimated to be 72 km². See further information of the calculation of the stock index in Jonasson, *et al.* (2007).

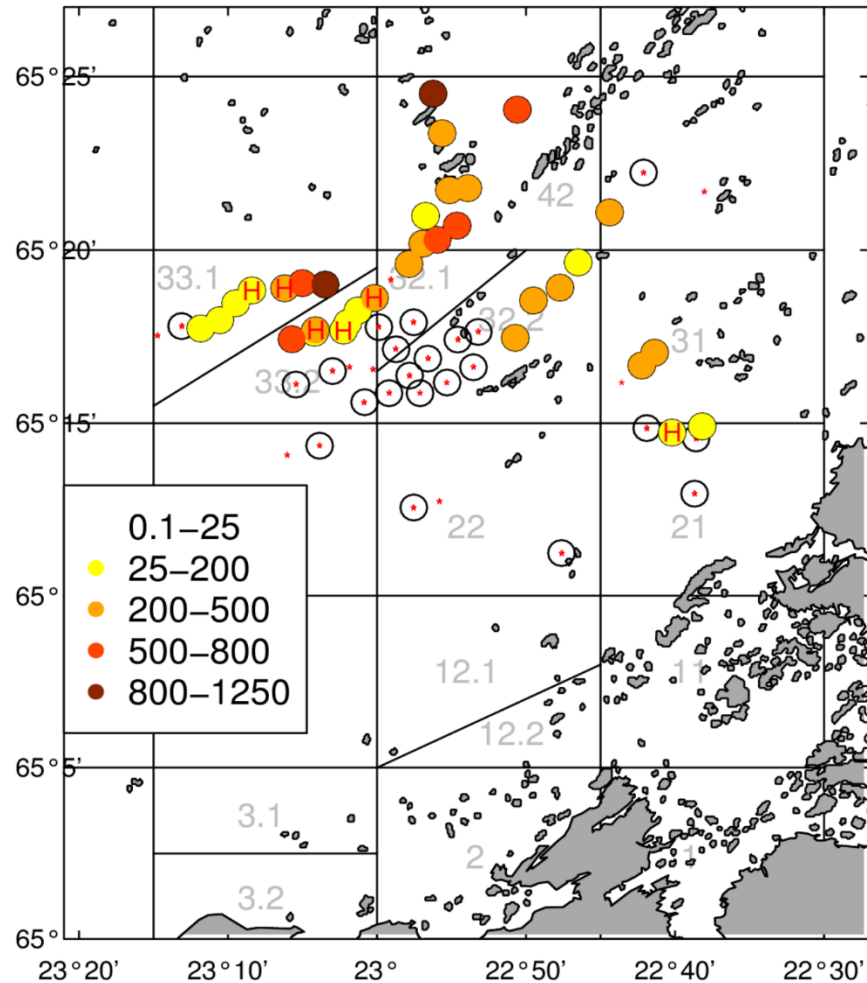


Figure 5. Catch of scallops (kg) per towed mile during dredge survey of the northern part of Breiðafjörður in 2013. Small dots represent stations with no scallops, but rings show stations with scallop catch according to the color scale. Black grids are the subareas marked with grey numbers. Red H marks stations with more than 10% cluckers/scallop ratio.

Mynd 5. Afli hörpudisks (kg) á hverja dregna sjómílu í plógleiðangri í norðurhluta Breiðafjarðar árið 2013. Litlir punktar sýna stöðvar með engum hörpudisk og litir innan hringja tákna magn skv. kvarða. Reitaskipting er sýnd og heiti reita (gráar tölur). Rautt H stendur fyrir stöðvar með meira en 10% af skeljum á hjör.

The stock index of Iceland scallop in Breiðafjörður was relatively stable from 1993 to 1999, but it declined sharply from 2000 to 2003. In 2003 (23 000 t), it was at a historically low level or at 30% of the average stock size during the 1990s. This declining trend continued until 2006, and since then the index slowly decreased until the last value of combined surveys of 2012 and 2013 (Figures 2, 4 & 5).

The trend in shell height frequency has been that the ratio of scallop >65 mm has increased and in 2013 there was high proportion of scallops >80 mm (Figure 6). Small scallops were hardly seen until 2012 in the southern part of the fjord (Figure 7). Year-classes from 2004–2009 are poorly visible in the stock.

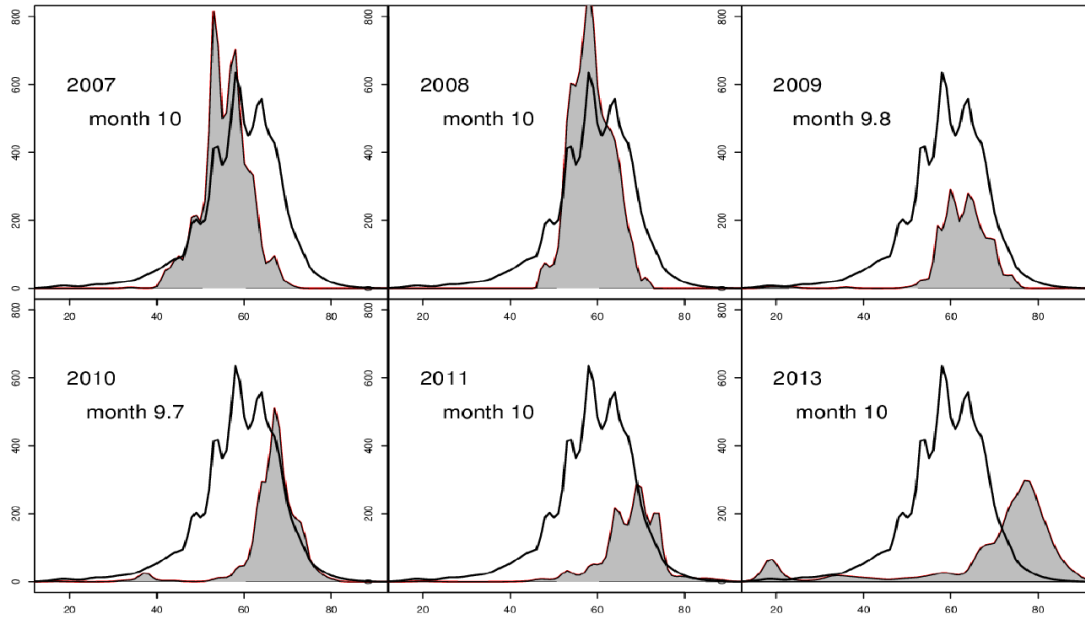


Figure 6. Frequency distribution of scallop shell height (mm), mean numbers per towed mile, from subarea 33.1 (south of Oddbjarnarsker) during 2007–2011 and in 2013. Grey filled area is the distribution of individual year and the black line is the mean of 1993–2013.

Mynd 6. Hæðardreifing (mm) hörpudisks frá reit 33.1 (suður af Oddbjarnarskeri) frá 2007–2011 og 2013. Tölurnar eru meðalfjöldi skelja á togmilu. Gráa svæðið er umrætt ár og svartar línur eru meðaltal áráanna 1993–2013.

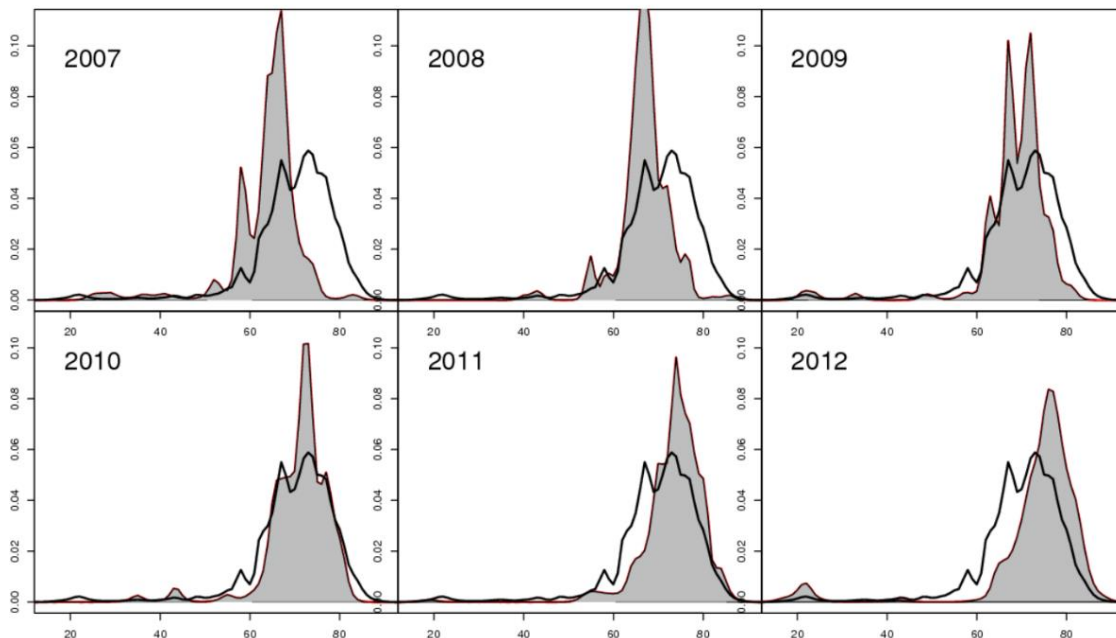


Figure 7. Relative size frequency distribution (%) of scallops from subarea 2 (west of Stykkishólmur) during 2007–2012. Grey filled area is the distribution of individual year and the black line is the mean of 1993–2012.

Mynd 7. Hlutfallsleg hæðardreifing (mm) hörpudisks frá reit 2 (vestur af Stykkishólmi) frá 2007–2012. Gráa svæðið er umrætt ár og svartar línur eru meðaltal áráanna 1993–2012.

CAMERA SURVEY 2014 – 2018

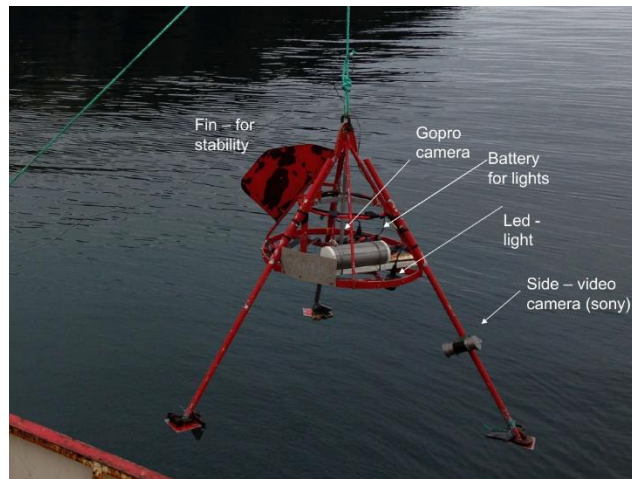


Figure 8. The first camera drop frame used for mapping scallop populations in Breiðafjörður.

Figure 8. Mynd af fyrsta þrífætinum sem notaður var við kortlagningu hörpudisks í Breiðafirði.

A drop frame camera survey has been conducted on scallop grounds in Breiðafjörður for the last five years (Figure 8). Stokesbury (2012) discussed some of the advantages that the video/camera survey technique has over conventional dredge survey and states that the new method is a direct measure of absolute abundance versus a semi-quantitative one. It is more precise, rather fast and nonintrusive. These are the main reasons why the MFRI is exploring to change from dredge survey to a camera survey.

Several tows with dredge are also carried out to get information on shell height and biological samples. Ten camera "drops" are completed on each station and the general rule is to count every other drop or five drops in total. In the camera survey all animals are counted, and the area of the image is known.

In April 2014, a pilot camera survey focused mainly on the Breiðasund area in the southern part of the fjord, where experimental fishing had been planned (Figure 9). There were also stations on conventional fishing grounds in the southern area, Sundin (subarea 12.2), and the area between Höskuldsey and Elliðaey (subarea 12.1). In total 146 station were completed. New and grounds that were not covered with the older dredge survey were also surveyed. Those were in Hvammsfjörður, south of Skálmarnes, west of Látralönd and around Sauðeyjar in northwestern part of the fjord. Large numbers of scallops were found on many of the "new" grounds. Another survey was conducted in December 2014 and covered the area that was fished in the experimental fishing in Breiðasund.

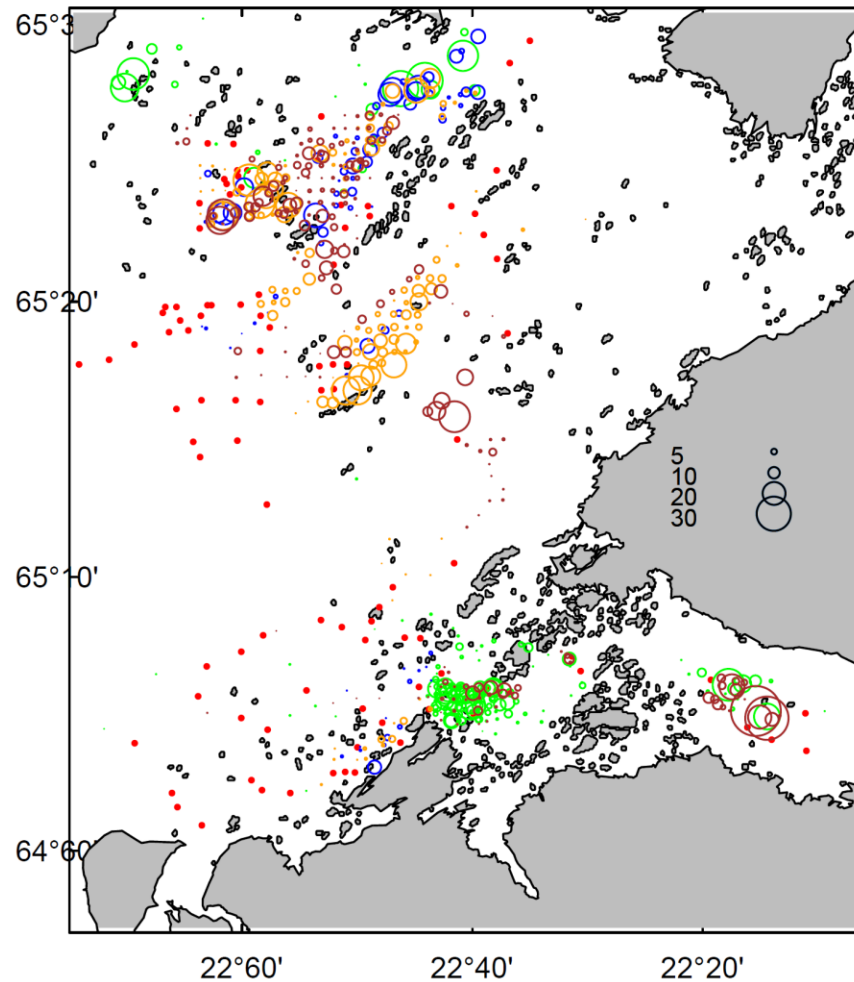


Figure 9. Camera surveys stations in Breiðafjörður, during 2014 (green), 2015 (blue), 2016 (orange) and 2017 (brown). The size of the circles represents the number of scallops (m²). Red dots are stations with no scallop.

Mynd 9. Stöðvar í myndavélaleiðngum árin 2014 (grænt), 2015 (blátt), 2016 (appelsínugult) og 2017 (brúnt). Stærð hringja tákna fjölda hörpudiska (m²) skv. kvarða. Rauðir punktar eru þar sem enginn hörpudiskur sást.

During autumn of 2015 another camera survey was carried out mainly focusing on the northern part of Breiðafjörður (Figure 9). The areas covered in the northern part in 2015 were areas where experimental fishing was pre-planned, based on information from the 2014 survey. Further areas west of and around Flatey were also covered in 2015, with several stations of high scallop abundance.

In 2016, several stations were carried out in southern Breiðafjörður west and around Stykkishólmur where scallops were found to be present in rather low abundance (Figure 9). The stations in the experimental fishing sites in the northern part were revisited, and a better coverage was made of areas west of Flatey where there had been planned fishing experiments. The inlet Bjarneyjafló (SE of Flatey) was thoroughly surveyed, where scallops were found in high densities on several stations. Few stations were east of that area with few alive scallops found, but usually the substrate was also unfavorable or too muddy.

During autumn 2017, several experimental areas were revisited (Figure 9). As such, the fishing areas in Hvammsfjörður, Látralönd, west of Flatey and partly in Breiðasund were surveyed. Areas that had not been surveyed before with a camera were also visited; i.e. areas in Suðurfloí, south of Oddbjarnarsker, west of Álasker, east of Flatey in Flateyjaráll, and areas south of Rúfeyjaröst. Scallop in fishable quantities were found on conventional grounds south of Rúfeyjaröst, but few scallops were found in other areas apart from stations east of Flatey (Figure 9).

During autumn 2018, several experimental areas were revisited. Fishing areas in Hvammsfjörður, Látralönd, Skálmarnes, west of Flatey, Bjarneyjar, Rúfeyjar and Breiðasund were surveyed. Areas west of Álasker that had not been surveyed before with camera were also visited. The 2018 survey is still being analyzed, but the images for Hvammsfjörður, west of Flatey and Bjarneyjar regions are done. Images from older surveys can be found here: <http://www.hafro.is/~jonasp/>

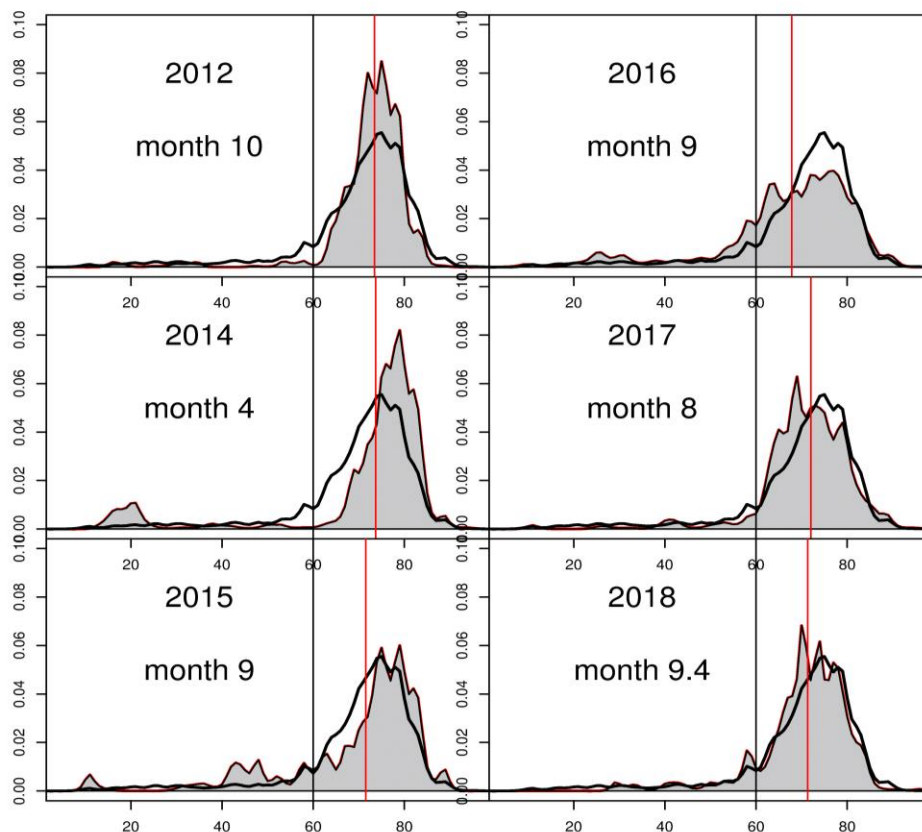


Figure 10. Relative size frequency distribution (%) of scallops from experimental fishing area in Breiðasund (east of Stykkishólmur) during 2012–2018. Grey filled area is the distribution of individual year and the black line is the mean of the period. Black vertical line is set at 60 mm which is the minimal landing size and red vertical line is the mean length of each year.

Mynd 10. Hlutfallsleg hæðardreifing (mm) hörpudisks úr tilraunareit í Breiðasundi (austur af Stykkishólmi) frá 2012–2018. Gráa skyggða svæðið er umrætt ár og svartar línur eru meðaltal árunna sem eru sýnd. Svört lóðrétt lína er sett við 60 mm sem er lágmarkslöndunarstærð og rauð lóðrétt lína er meðaltal hvers árs.

The trend in shell height frequency in recent years on experimental fishing area in Breiðasund has been that the ratio of scallop above 65 mm has increased and in 2014 there was high proportion of scallops above 80 mm (Figure 10). High ratio of 2-3-year-old scallop, or 15-25 mm shell height, was also seen in 2014 (2011 - 2012 year-classes). Those scallops entered the fishable stock in autumn 2016 and were mostly above 60 mm in 2017. With increased recruitment the average shell height decreased in 2016. In 2018, there was a peak of scallops around 55 mm; scallops observed as 25-30 mm in 2016. In the northern areas west of Flatey and especially in Látralönd, younger scallops have entered the fishable stock in 2016-2018. In Hvammsfjörður, several younger year-classes were observed in 2014, and in 2017 and 2018 those had entered the fishable stock. Overall there has been a slight positive change in recruitment, after several poor year-classes from roughly the years 2004-2010.

EXPERIMENTAL FISHERY

In autumn 2014, an experimental fishery in Breiðasund in the southern part of Breiðafjörður yielded a catch of 281 tonnes. The experimental fishery is a joint program by the MFRI and local fishermen which supply boat for the camera survey that takes place prior to the fishing activities in the autumn. The dredge used is lighter than the one that was used when the fishery was still open, but further modification and development of harvest technique is warranted. The fishing experiments are re-evaluated every year, but their aim is to gather data over a few years and find optimal harvest ratio for the stock and management strategy.

Each year there are certain limits set for each region and the aim is to fish with different harvest ratios; 4%, 8% or 12%. Within each region the catch and effort are recorded on ~1.08 km² rectangles. The actual fishable area within each region was rather poorly known, but VMS data are gathered during the fishing activities. The original abundance estimate in each region will therefore be adjusted a posteriori. The lesson from the experimental fishery, seen in trend in the CPUE and biomass estimates from drop frame camera survey, suggest that 12% harvest ratio is too high for this stock. Therefore, suggested harvest ratio for the fall of 2019 is between 6–8% and reduced or the same catch at areas where biomass estimates from the 2018 survey have not been finished.

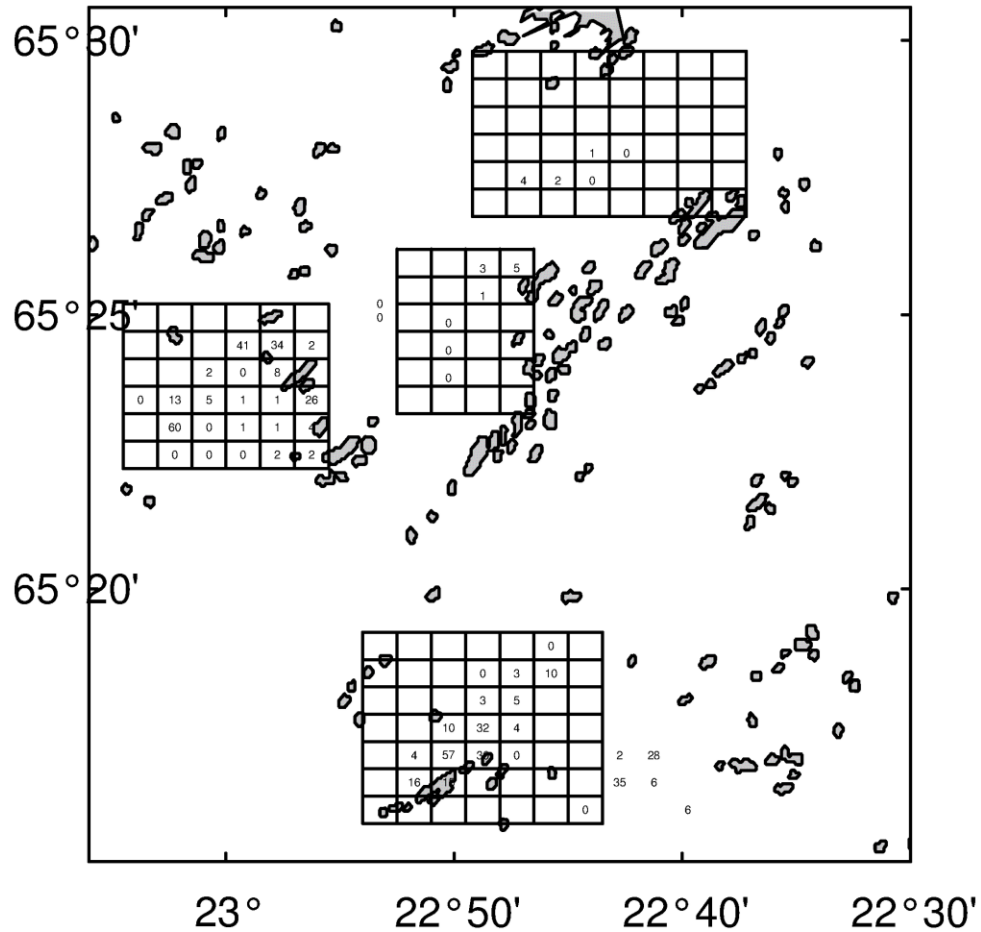


Figure 11. Catch (tonnes) in northern areas during autumn of 2018; west of Flatey region to the left, Látralönd region on the middle right, Skálmarnes region in the upper right, Bjarneyjar region in lower middle and Rúfeyjar region to the right of Bjarneyjar (grid not plotted).

Mynd 11. Yfirlit yfir afla (tonn) á norðursvæði haustið 2018. Svæði vestur af Flatey til vinstri, Látralöndasvæði til hægri við miðju, Skálmarnessvæði til hægri að ofanverðu, Bjarneyjar við miðju að neðanverðu og Rúfeyjar utan hnita hægra megin við Bjarneyjar.

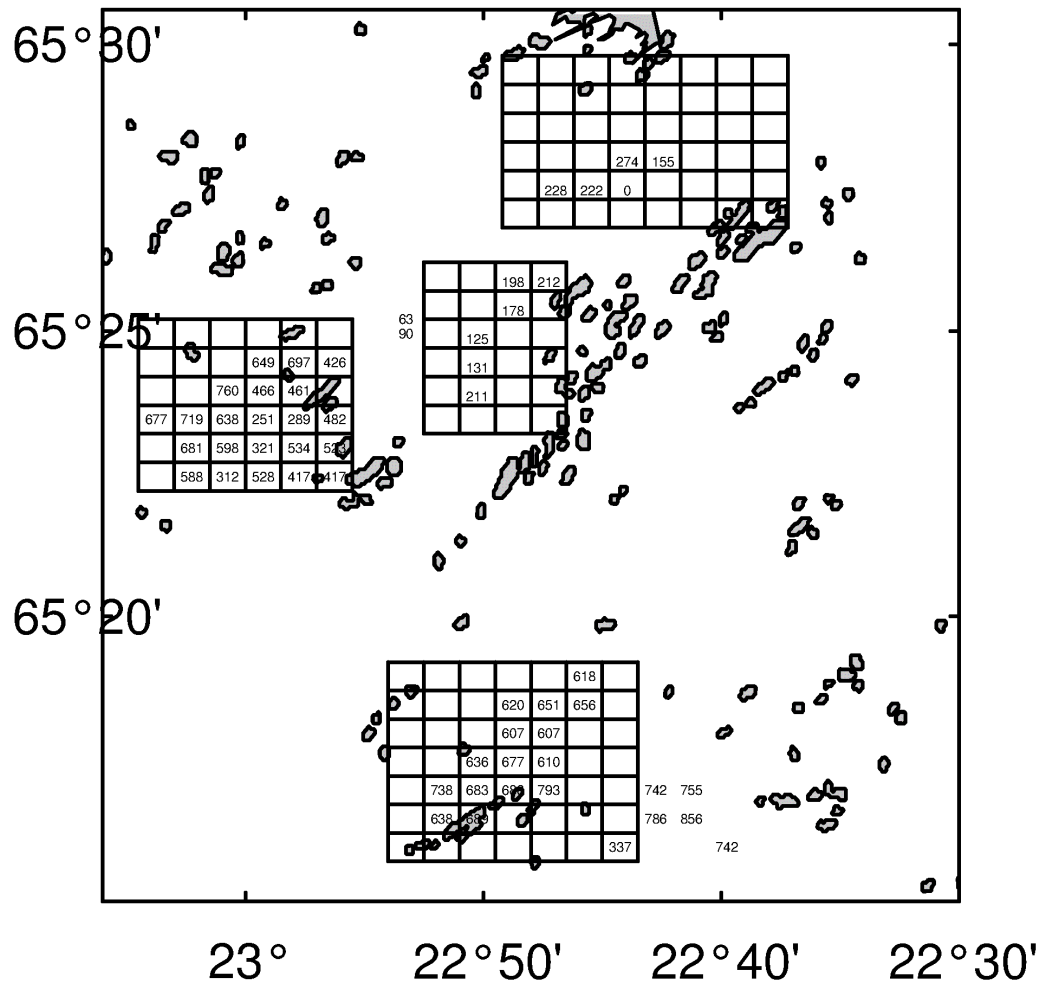


Figure 12. CPUE (kg per nautical mile) in northern areas during autumn of 2018, west of Flatey region on the left, Látralönd region on the middle right, Skálmarnes region on the upper right, Bjarneyjar region in lower middle and Rúfeyjar region to the right of Bjarneyjar (grid not plotted).

Mynd 12. Yfirlit yfir afla á sóknareiningu (kg per sjómílu) á norðursvæði haustið 2018. Svæði vestur af Flatey til vinstri, Látralandasvæði til hægri við miðju, Skálmarnessvæði til hægri að ofanverðu, Bjarneyjar við miðju að neðanverðu og Rúfeyjar utan hnita hægra megin við Bjarneyjar.

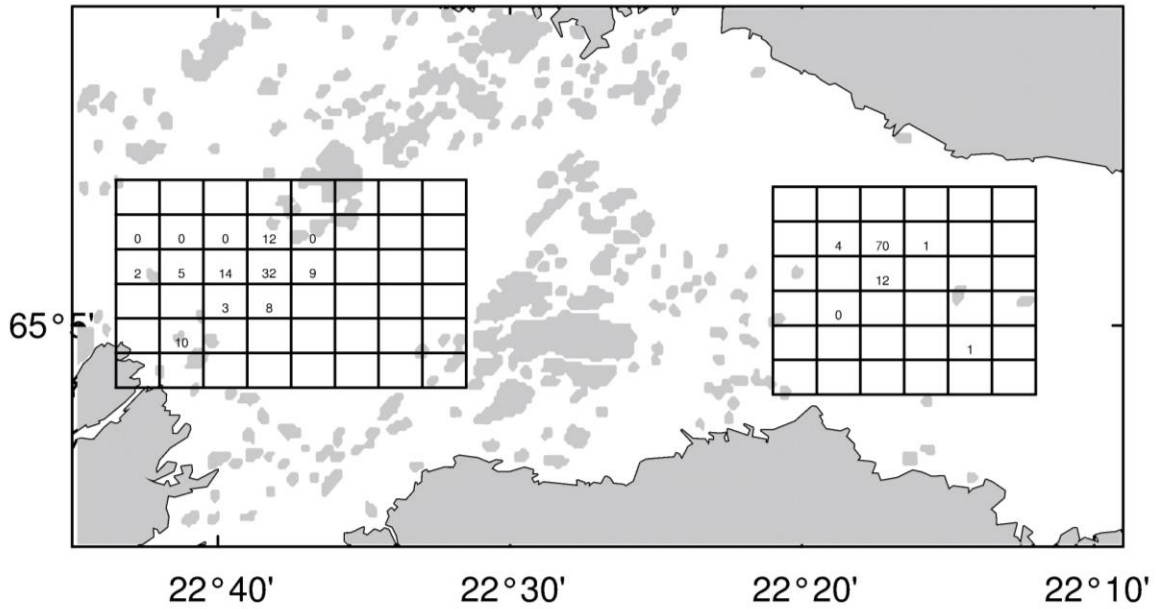


Figure 13. Catch (tonnes) in southern areas during autumn of 2018, Breiðasund region on the left and Hvammsfjörður region to the right.

Mynd 13. Yfirlit yfir afla (tonn) á suðursvæði haustið 2018. Breiðasund til vinstri og Hvammsfjörður til hægri.

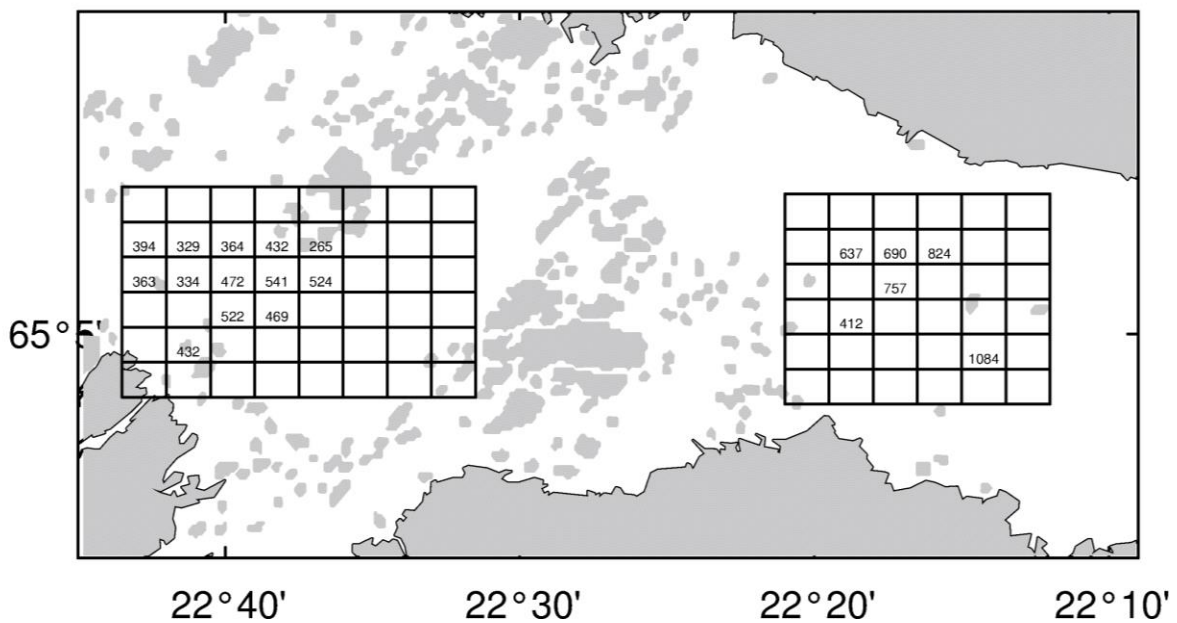


Figure 14. CPUE (kg per nautical mile) in southern areas during autumn of 2018, Breiðasund region on the left and Hvammsfjörður region to the right.

Mynd 14. Yfirlit yfir afla á sóknareiningu (kg per sjómílu) á suðursvæði haustið 2018. Breiðasund til vinstri og Hvammsfjörður til hægri.

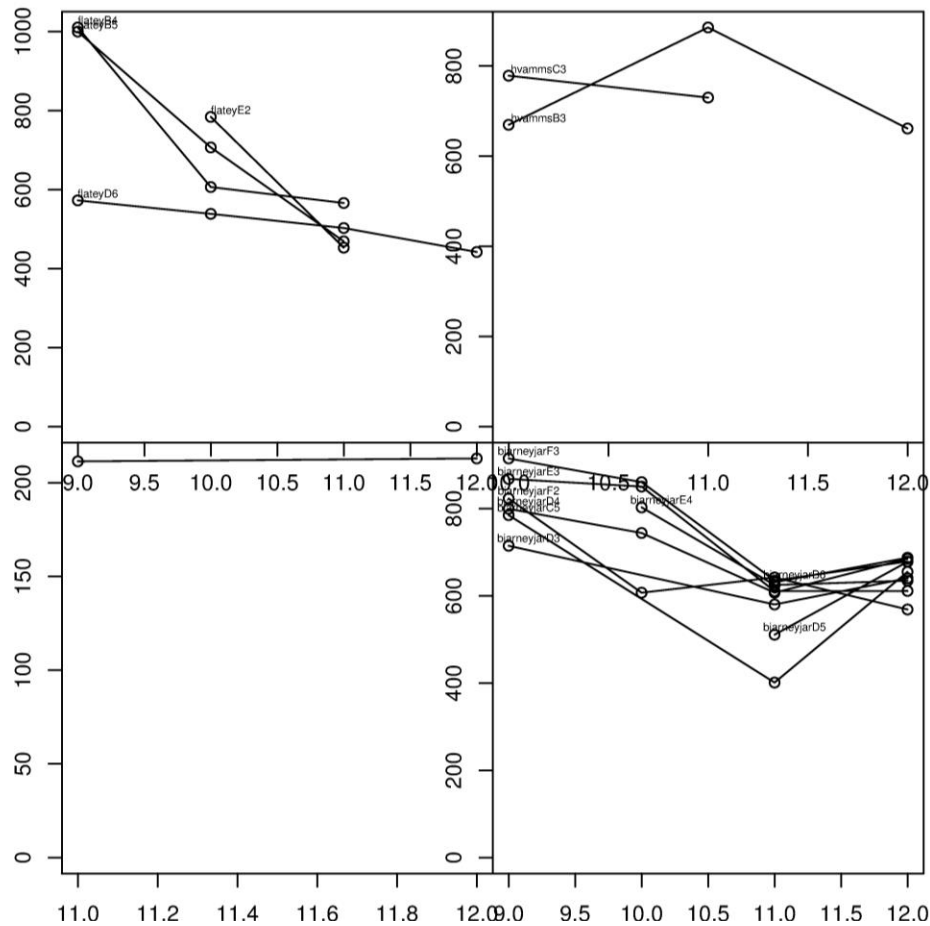


Figure 17. Development in CPUE (kg per towed mile) from September (9) to December (12) during the autumn of 2018. Rectangles within regions are plotted (a minimum of 2 tonnes caught each month). Upper left, west of Flatøy, upper right, Hvammsfjörður, lower right, Látralönd and lower left, Bjarneyjar.

Mynd 17. Þróun í afla á sóknareiningu (kg á togmílu) veturinn 2018 eftir mánuðum frá september (9) til desember (12). Sýnd eru undirsvæði þar sem að lágmarki 2 tonn voru veidd hvern mánuð. Svæði vestur af Flatøy eru vinstra megin að ofanverðu, Látralönd vinstra megin að neðanverðu, Hvammsfjörður hægra megin að ofanverðu og Bjarneyjar vinstra megin að neðanverðu.

The experimental fishery continued during the winter 2015/2016, when 635 tonnes were caught on four defined fishing grounds outside of the traditional Iceland scallop grounds in Breiðafjörður. During the winter 2016/2107, 575 tonnes were caught on five different regions in the fjord. The original plan for the winter 2016/2017 was to harvest in total 950 tonnes on all regions with two boats (Table 2). In practice only one boat was active, and fishermen went on strike for 10 weeks (December–February). For the winter 2017/2018 it was proposed to fish 1030 tonnes on six areas within the fjord. Two boats participated in the fishery which lasted from September–December and 945 tonnes were landed.

During the winter 2018/2019 it was proposed to fish 959 tonnes on seven areas with two boats. The fishing occurred in September–December and in total 694 tonnes were landed. In the northern areas fishing was according to plan in Bjarneyjar and Rúfeyjar, but only 205 tonnes of proposed 296 tonnes were fished in Flatøy area (Figure 11). Only few tonnes were landed from the Látralönd and Skálmarnes areas. The CPUE

was strikingly lower in Látralönd and Skálmarnes compared to previous year or around 200 kg/nm (Figure 12). There was also drop in CPUE in Flatey region from previous year, with CPUE in many rectangles around 600 kg/nm. The CPUE was slightly higher in Bjarneyjar or between 600 to 700 kg/nm. The CPUE in the new area Rúfeyjar was around 800 kg/nm.

In the two southern regions, 89 tonnes were caught in Hvammsfjörður, close to the planned 88 tonnes. Fishing activities was registered mainly on one rectangle in the northwestern part of the area, or 70 tonnes (Figure 13), with CPUE of 690 kg/nm (Figure 14). Less fishing activity (<12 tonnes) was recorded on few rectangles with CPUE of 637-757 kg/nm. In Breiðasund, 97 tonnes out of 97 tonnes planned, were caught. More than ten tonnes were caught on 4 rectangles (10-29 tonnes) and CPUE was between 432-529 kg/nm respectively.

Development in CPUE by months during autumn 2018 was monitored (on rectangles with a minimum of 2 tonnes caught each month). As expected, the CPUE decreased as the season progressed, but differently between regions (Figure 17). In Látralönd the CPUE was stable at only around 200 kg/nm compared to end values of 400 kg/nm in December 2017. The highest CPUE in the area west of Flatey, fell from 1000 to 500 kg/nm over the fishing season, but the end values in December of 2017 were little less than 1000 kg/nm. In Hvammsfjörður, the end CPUE was around 700 kg/nm, compared to end values of around 800 kg/nm in 2017. In Bjarneyjar, the initial CPUE were close to 800 kg kg/nm and they declined to the roughly 600 kg/nm. The end values in December of 2017 in Bjarneyjar were between 600-1000 kg/nm.

Based on biomass estimates from the camera survey and size of fishing area from VMS data, the harvest ratio in most areas has been higher than proposed. These values will be reevaluated with more data both on the size and abundance in the area. Further analyses of the data gathered from the first years of experimental fishery will be published in a special report.

ADVICE

Throughout the period 1993–2000, the total allowable catch (TAC) in Breiðafjörður was relatively stable at about 8000-8500 tonnes (Table 1). At that time, the recommended annual TAC was 10% of the total estimated biomass from dredge surveys; since 1994, the national TAC and the landings have been in accord with the recommendations. Between 2003 and 2013 the MRI advised that no fishery should be conducted on scallop grounds in Breiðafjörður. In 2014 the advice was no fishery on conventional grounds, but small-scale fishing experiment were allowed in areas outside the limits of the dredge survey. The same advice has been given in 2015-2018 and fishing trials continued, mainly on new grounds, but later also on traditional grounds where scallops are found in fishable quantities. It is proposed to catch 499 tonnes in fishing trials in seven areas in the fishing year 2019/2020 (Table 2).

MFRI advises that when the precautionary approach is applied, no fishery for Iceland scallop, apart from experimental fishing, should be conducted in Breiðafjörður for the fishing year 2019/2020.

Table 1. Recommended TAC of Iceland scallop within Breiðafjörður, recommended TAC in Iceland, TAC in Breiðafjörður, catch in Breiðafjörður, total catch in Iceland. Since 1992 the TAC was for following quota year. *Experimental fishery.

*Tafla 1. Ráðgjöf fyrir hörpudisk í Breiðafirði, heildarráðgjöf fyrir hörpudisk, aflamark í Breiðafirði, heildaraflamark, afli í Breiðafirði og heildarafli hörpudisks. Síðan 1992 er ráðgjöfin fyrir fiskveiðiárið. *Tilraunaveiðar.*

Year	Rec. Breiðafj. TAC	Rec. N. TAC	TAC Breiðafj.	Catch Breiðafj.	Catch Total
1980	-			7 100	9 100
1981	-			8 300	10 200
1982	-			10 000	12 100
1983	-			11 200	15 200
1984	11 000	14 100	11 000	11 900	15 600
1985	11 000	15 400	12 000	12 100	17 100
1986	10 000	14 200	12 000	12 700	16 400
1987	11 000	14 500	11 000	11 000	13 300
1988	10 000	13 500	10 000	9 800	10 100
1989	9 000	12 500	10 000	10 100	10 800
1990	10 000	13 500	10 000	10 100	12 400
1991	9 000	12 500	9 000	8 900	10 300
1992	8 500	11 200	8 500	10 600	12 400
1992/93	8 500	11 500	8 500	10 300	11 600
1993/94	8 000	10 100	9 800	8 000	9 400
1994/95	8 500	10 200	8 200	8 800	9 400
1995/96	8 000	9 500	8 000	7 400	8 000
1996/97	8 000	9 300	8 000	8 400	9 200
1997/98	8 000	9 300	8 000	8 900	10 600
1998/99	8 500	9 800	8 500	8 100	9 100
1999/00	8 500	9 800	8 500	8 700	9 200
2000/01	8 000	9 300	8 000	7 900	8 200
2001/02	6 500	6 750	6 500	6 400	6 600
2002/03	4 000	4 150	4 000	4 435	4 505
2003/04	0	0	0	0	0
2004/05	0	0	0	0	0
2005/06	0	0	0	0	0
2006/07	0	0	0	0	0
2007/08	0	0	0	0	0
2008/09	0	0	0	0	0
2009/10	0	0	0	0	0
2010/11	0	0	0	0	0
2011/12	0	0	0	0	0
2012/13	0	0	0	0	0
2013/14	0	0	0	15	15
2014/15	*	-	-	266	266
2015/16	*	-	-	635	635
2016/17	*	-	-	590	590
2017/18	*	-	-	942	944
2018/19	*	-	-	694	
2019/20	*				

Table 2. A scheme for experimental fishery in Breiðafjörður by areas. Estimated initial harvest ratio. The starting proposal and the catch of each area during the following winter.

Tafla 2. Tillögur fyrir tilraunaveiðar í Breiðafirði eftir svæðum. Metið veiðihlutfall og tillaga hvers veturs og veiði.

Area	H. ratio	Proposed 2019	Prop. 2018	Catch 2018	Prop. 2017	Catch 2017
Hvammfjörður	6%	48	88	89	100	104
Breiðasund	-	97	97	97	140	143
Skálmarnes	-	20	53	7	150	45
Látralönd	-	130	143	11	190	185
Flatey	8%	99	296	204	250	272
Bjarneyjar	8%	128	205	208	200	198
Rúfeyjar	-	77	77	78	-	-
Total		499	959	694	1030	945

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