NYTJASTOFNAR SJÁVAR 2012/2013

AFLAHORFUR FISKVEIÐIÁRIÐ 2013/2014

State of Marine Stocks in
Icelandic Waters 2012/2013

Prospects for the
Quota Year 2013/2014

Hafrannsóknastofnun (Marine Research Institute) 2013

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This report is produced under the supervision of the fisheries advisory board.

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Helga Lilja Bergmann and Birkir Bárðarson managed the publication of the report along with the editors. English translation by Eric Dos Santos.

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Foreword

In this report on the state of marine stocks for the fishing year 2012/2013 and prospects for the quota year 2013/2014 is provided customary information about the state of specific stocks, development of fisheries, stock size and recommended maximum catch levels, which takes into account potential yield and an applied precautionary approach. In addition, there are chapters about the stocks Iceland shares with other nations. In the beginning of the report is a brief discussion of local environmental conditions and their effects on marine life.

As before, the report is based on contributions from many employees of the Marine Research Institute (MRI) and collaborators at sea and on land, and their diligence and professionalism under the management of Björn Ævarr Steinarsson and the editors led by Þorsteinn Sigurðsson is much appreciated. As always, the most important fish populations in Icelandic waters have been covered by committees within the International Council for the Exploration of the Sea (ICES) and the reader is directed to their web site for further information: www.ices.dk.

Last year, a special committee appointed by the Fisheries Minister began preparation of a HCR for haddock and saithe. On the committee were representatives from the fishing industry, government and MRI. The recommended harvest control rules (HCRs) were reviewed by ICES and found to be in accordance with the international precautionary approach to fisheries management and the Icelandic government's policy of sustainable resource exploitation and maximum sustainable yield. With a declaration to ICES in April, the government adopted these HCRs for managing the haddock and saithe fisheries for the next five years.

For saithe, the HCR of the TAC sets the quota for the coming year using the average current quota and 20% of the fishable stock (age four and older) in the beginning of the year. If the spawning stock declines below Btrigger reference point of 65 thousand tonnes (historical minimum), the harvest rate is decreased. For saithe, the HCR will lead to smaller fluctuations in the annual TAC, in relation to fluctuations in the annual stock assessment.

The HCR for haddock is different from that for saithe in that it takes into account that the growth rate of haddock varies much more than most other fished species. According to the HCR, the TAC for the next fishing year is 40% of the estimated fishable stock (45 cm and larger) in the beginning of the next year, but the harvest rate is decreased when the spawning stock is estimated under a Btrigger reference point of 45 thousand tonnes.

Formal long-term objectives and a defined HCR are key parts management plans used for managing fisheries, as is now required internationally. This means that on the basis of catch data and biological understanding of species including measurements of growth and condition of the stocks, HCRs developed by recognised methods are evaluated to make sure that they fulfil goals for sustainable fishing and continued yield of the resource.

Harvest plans of this type make predictions for at least a few years and it is expected that they be followed for the length of time specified—5 years in the case of long-lived species like cod, haddock and saithe—before review is necessary. The time has come for the development of long term policies for fisheries harvesting and appropriate HCRs and positive steps have been made in this direction. A proposal for a redfish HCR has been sent to ICES for review and it is expected that work on a management plan will continue.

As is reported within this report, the harvest rate of cod has decreased over the last decade from 35–40% in 2000 to about 20% in recent years. This trend has made year classes last longer in the population, causing it to grow. The fishable stock has grown close to 55% in the last 6 years and is estimated to be the largest in the last three decades. The spawning

stock is more than double the size it was for most of the last decade. The proportion of older fish in catches has increased. The effect of this is seen in much increased catch per unit effort (CPUE) and more efficient use of vessel quotas, which indicates that the condition of the stock has improved.

The cod stock was estimated at about 1173 thousand tonnes in the beginning of the year. Following poor cohorts in 2001–2007, those that came in 2008, 2009, and 2011 were estimated close to the historical average which is about 175 million age 3 recruits, but the 2010 cohort is thought to be about 65% of the average. Preliminary measurements of the 2012 cohort suggest that it is somewhat smaller than average at about 150 million year 3 recruits. These average sized cohorts are about to enter the fishable stock (2009 cohort in 2013) and projections suggest that the stock will continue to improve, given the current harvest rate, though the 2010 cohort is relatively small.

Many of our fished stocks are well balanced and the harvests are moderate so changes in stock size and recommendations are due mostly to variations in recruitment. For instance, the redfish stock seems to be growing well due to improved recruitment and there are indications that recruitment in the saithe stock is at or above average. On the other hand, the haddock stock which was large has been declining rapidly for many years due to poor recruitment.

During the past decade the status of many of Iceland's most important pelagic species has been uncertain. The Icelandic summer-spawning herring seems to be getting stronger, despite an epidemic in recent years and the significant mortality caused by oxygen deficiency in Kolgrafafjörður, where a part of the stock spent the winter. Following a good capelin season last winter, the prognosis for next season is poor, as measurements of the incoming cohorts in the fall suggest that the fishable and spawning stocks could be rather small.

There are no indications that the ocean warming that has occurred in Icelandic waters for more than a decade is ending and that certainly has had an effect on the growing mackerel runs in recent years. In 2011 and 2012 ocean warming was most significant off the west coast and the distribution of mackerel reflected this trend. It will be interesting to follow developments in environmental conditions in coming years, considering that variations in temperature and marine currents have a decisive effect on the size and migrations of pelagic stocks.

Reykjavík, 6. júní 2013
Jóhann Sigurjónsson

4. English summary of the State of Marine Stocks in Icelandic Waters 2012/2013 – Prospects for the Quota Year 2013/2014

2.1. Cod

Total landings of Atlantic cod (*Gadus morhua*) in 2012 were 196 thousand t, compared to 172 thousand t in 2011. The national TAC for cod in the quota year 2012/2013 was set according to the harvest control rule (HCR) at 195 thousand t.

Mean weights at age in the landings and spring survey have been increasing in recent years and are presently around the long-term average.

Biomass indices in the spring survey have increased over the last 6 years, mostly due to increased abundance of older cod. The indices of year classes 2001–2007 as juveniles were at or below the mean, but are in later years (6–11 year old) above the mean.

The reference biomass (age 4 and older) in 2013 is estimated as 1170 thousand t and the spawning stock as 480 thousand t, compared to B_{lim}=125 and $B_{trigger}$=220 thousand t. The reference biomass has been increasing in recent years and is now larger than observed in the last three decades. The spawning stock has not been so large since the early 1960s. During the last decade, the harvest rate has declined from 34–40% to around 20% and the fishing mortality from above 0.7 in 2000 to 0.26 in 2012. Recruitment during this period has been around 2/3 of the long-term average. The decrease in harvest rate, imposed by management action, has hence been the main reason for the increase in stock size.

Based on the present assessment, the TAC in 2013/2014 should be set at 215 thousand t according to the management plan. Following the HCR will most likely lead to an additional increase in TAC in the medium term. The Marine Research Institute (MRI) emphasizes the importance of managers subtracting all other expected catches prior to allocating the ITQ catches to the fishing fleet.

2.2. Haddock

In 2012, 46 000 t of haddock (*Melanogrammus aeglefinus*) were landed, compared to 49 000 t in 2011. The advice for the quota year 2012/13 was 32 000 t and the TAC was set at 36 000 t.

In March 2013 ICES evaluated a harvest control rule to be precautionary and in conformity with the MSY approach. The rule was adopted by the Icelandic government in April 2013. According to the HCR, TAC for the next fishing year is 40% of the estimated reference biomass (45 cm and larger) in the beginning of the next calendar year. Harvest rate will be reduced below 40% if the spawning stock is estimated to be below 45 000 t. The reference biomass is on average close to the spawning stock, but not sensitive to fluctuations in maturity at age, so unnecessary variability in TAC is avoided.

The spawning stock at the beginning of 2013 is estimated 90 000 tonnes and the harvest rate in 2012 as 42%. Recruitment from year classes 2008–2012 is estimated to be poor, or 23 million age 2 individuals on average. Growth was very poor in 2004–2009 but increased considerably in 2010–2012, when it was estimated to be above average. Mean weight of 6 years and older haddock is close to average, but above average for the small 2008–2012 year classes.

Based on the approved HCR, the MRI recommends a TAC of 38 000 t for the quota year 2013/2014. The TAC is expected to decrease in coming years when the year class 2007 and older disappear from the stock.

2.3. Saithe

In 2012, landings of saithe (*Pollachius virens*) were 52 000 t, a 700 t increase from 2011. The advice for the quota year 2012/2013 was 49 000 t and the TAC was set at 50 000 t.

The reference biomass of age 4 and older is estimated as 321 000 t at the beginning of 2013, with a harvest rate of 17% in 2012, and a fishing mortality of 0.19. The biomass estimate this year is considerably higher than last year, due to a rapid increase in the spring survey indices, but experience shows that this bottom trawl survey is not an accurate indicator for the semi-pelagic saithe stock. A comparison between different assessment models indicates some risk of overestimation this year.

This spring, the Icelandic government adopted a formal management plan for the saithe fishery. ICES has evaluated this management plan and concluded that it is in accordance with the precautionary approach and the MSY framework. It is based on a HCR that sets the upcoming TAC as an average of the last TAC and 20% of the this year's reference biomass. A lower harvest rate is applied if the spawning stock biomass goes below the reference point $B_{trigger}$ (65 000 t). According to the HCR, the saithe TAC for the quota year 2013/2014 will be 57 000 t.

2.4. Golden redfish and *Sebastes viviparous*

In 2012, approximately 43 000 t of **golden redfish** (*Sebastes norvegicus*) were landed in Iceland, similar to 2011. The spring survey index of the fishable biomass is the highest since 1985 and there are

indications from the autumn survey that year classes 1997–2003 are above average. According to an age-length based model (Gadget) the fishable stock has increased since 2005 after a considerable reduction in 1985–1995. MRI recommends a TAC for the quota year 2013/2014 of no more than 52 000 t which is close to MSY.

Exploratory fishery for ***Sebastes viviparus*** started in 1997 with a catch of 1 200 t. The catches declined rapidly until 2000, and between 2001 and 2009 only a few tonnes were landed. In 2010 a direct fishery started again with total landings of 2 600 t, followed by 1 400 t in 2011 and 535 t in 2012. Very little is known about the stock size and sustainable yield. Therefore, MRI recommends that the precautionary approach is adopted in the management of *Sebastes viviparus* fishery in order to ensure sustainability of the resource and recommends a TAC of no more than 1 500 t for the quota year 2013/2014.

2.5. Deep sea redfish

In 2012, 12 000 t of **Icelandic demersal deep sea redfish** were landed, similar to 2011. The lack of long-term indices of abundance prevent analytical assessment, but survey indices from the autumn survey since 2000 are used as basis for advice. The index of fishable biomass decreased between 2000 and 2003 and has since then been stable. ICES and MRI recommend that effort should be kept low and the TAC in Icelandic waters should not exceed 10 000 t for the quota year 2013/2014.

In 2012, an estimated 3 200 t of **shallow pelagic redfish** were caught by Russia on the main fishing grounds south and southeast of Greenland. Annual landings peaked at about 100 000 t in 1993–1995. Given the very low state of the stock, ICES has advised since 2010 that no directed fishery should take place.

In 2012, the estimated landings of **deep pelagic redfish** were about 33 000 t, compared to 47 000 t in 2011 and 59 000 t in 2010. Annual landings were between 75 000 and 140 000 t in 1995–2004. The Icelandic fleet caught about 6 000 t in 2012, compared to 12 000 t in 2011.

ICES will give advice on the pelagic redfish stocks for 2014 in autumn 2013, and will base the advice on the results from the international acoustic/trawl survey conducted in the Irminger Sea and adjacent waters in June–July 2013.

2.6. Greenland halibut

In 2012, approximately 29 000 t of Greenland halibut (*Reinhardtius hippoglossoides*) were landed from the East Greenland, Iceland, and Faroese waters, of which the Icelandic fleet caught 14 000 t. CPUE of the Icelandic trawler fleet has been slowly increasing from a historical low in 2005. Biomass indices from the Icelandic autumn groundfish survey in 1996–2012 show a similar pattern. ICES and MRI recommend that effort should be reduced to a level corresponding to the long-term maximum sustainable yield. Such effort corresponds to a total catch of no more than 20 000 t for the East Greenland, Icelandic and Faeroese waters in the 2013/2014 quota year.

2.7. Halibut

On 1 January 2012 a regulation was issued to ban all directed fishery for halibut (*Hippoglossus hippoglossus*) and that all viable halibut must be released in other fisheries.

The landings of halibut dropped to 35 t in 2012, compared to 555 t in 2011. Historically, halibut has mainly been taken as bycatch in the bottom trawl and longline fisheries. In the last years before the regulations a longline fishery directed at halibut was developing, coinciding with a sharp decline in the survey biomass index. In recent years, the biomass indices from the groundfish survey have declined to a very low level. Currently, the halibut stock seems to be severely depleted, with very little recruitment into the spawning stock in recent years.

The MRI recommends that these regulations should be maintained until clear indications of significant improvement in the stock are visible.

2.8. Plaice

In 2012, 5 900 t of plaice (*Pleuronectes platessa*) were landed. Survey indices have increased somewhat in recent years, and recruitment measurements from the groundfish survey suggest some improvement in the last few years. Stock assessment results show increasing biomass since 2000 and fishing mortality has also been decreasing since then. The MRI recommends that the catch should not exceed 6 500 t in the quota year 2013/2014, and that regulations regarding area closures on spawning grounds remain in effect.

2.9. Dab

In 2012, 860 t of dab (*Limanda limanda*) were landed. Between 1987 and 1997, landings of dab increased from 1 200 to 8 000 t, but have since decreased considerably. CPUE is now near a historical low. The MRI recommends that the TAC for the quota year 2013/2014 should not exceed what is considered to be bycatch in other fisheries. Considering the state of the stock, this could amount to about 500 t from the defined management area for the 2013/2014 quota year.

2.10. Long rough dab

In 2012, 140 t of long rough dab (*Hippoglossoides platessoides*) were landed, compared to the record high of 6 400 t in 1996. Survey indices and CPUE have been near a historical low in recent years. The MRI recommends that the TAC for the quota year 2013/2014 should not exceed what is expected to be landed as bycatch in other fisheries. Considering the state of the stock, this could amount

to around 200 t for the 2013/2014 quota year from the defined management area.

2.11. Witch

Since 1988, landings of witch (*Glyptocephalus cynoglossus*) have been between 900 and 3 000 t, with landings in 2012 amounting to 1 300 t.

The abundance index for the fishable stock reached a maximum in 2005, but has since been declining and CPUE has shown a similar trend. The size of the witch stock remains uncertain, but survey data indicate that both the fishable stock and recruitment have declined in recent years. The MRI recommends a TAC of no more than 1 100 t for the quota year 2013/2014.

2.12. Lemon sole

In 2012, 1 600 t of lemon sole (*Microstomus kitt*) were landed. Survey indices of the fishable stock were high in 2003–2010, somewhat lower in 2011 and 2012, but again high in 2013. Recruitment indices have also been high since the early 2000s. CPUE in the Danish seine fishery off Southwest Iceland has doubled from the period 1993–1998 to the present. Preliminary stock assessment indicates a high current fishing mortality rate. The MRI recommends a TAC of no more than 1 600 t for the quota year 2013/2014.

2.13. Megrim

Megrim (*Lepidorhombus whiffiagonis*) is caught as bycatch in the Danish seine and *Nephrops* fisheries off South Iceland. In 2012, 410 t of megrim were landed. The MRI does not recommend a TAC for the quota year 2013/2014.

2.14. Atlantic wolffish

Landings of Atlantic wolffish (*Anarhichas lupus*) in 2012 were around 10 000 t, the lowest landings since 1985. The index of fishable biomass is close to average but recruitment indices are at a historical low level. According to the stock assessment, the fishable part of the stock has been decreasing since 2006 and further decline is foreseen, as recruitment to the fishable stock will be low in the coming years. MRI recommends setting the TAC as 7 500 t for the quota year 2013/2014, based on F_{max}=0.29. In addition, the MRI recommends a continued closure of the major spawning area off West Iceland during the spawning and incubation season in autumn and winter.

2.15. Spotted wolffish

Landings of spotted wolffish (*Anarhichas minor*) in 2012 were about 1 900 t. The average annual landings were 1 000 t in 1982–1997, but have increased to 2 300 t since 1998. Survey indices of recruitment, total biomass and fishable biomass are all at historical minimum, while the harvest rate is about three times higher than in 1985–1997. The basis of the MRI advice is to reduce the harvest rate to half of what it has been on the average since 2000. The MRI recommends that the TAC for the quota year 2013/2014 should not exceed 900 t.

2.16. Blue ling

In 2012, 4 400 t of blue ling (*Molva dypterygia*) were landed. In past decades, blue ling has mainly been taken as bycatch in the bottom trawl fishery. In 2008–2011, the proportion caught by longliners increased considerably as a result of targeting of blue ling by that fleet. This trend reversed in 2012 and longlines accounted for 58% of landings in 2012 compared to 70% in 2011. Indices from the autumn survey indicated an increase in biomass and recruitment between 2005 and 2009, but indices from 2010 to 2012 indicate a sharp decrease in stock size.

MRI considers the current exploitation level unsustainable and recommends that landings be constrained to no more than 2 400 t in the quota year 2013/2014. The advice is to bring the exploitation level down to similar levels as observed in 2002–2009 when the stock size was increasing. Furthermore, a continued closure of known spawning grounds from 15 February–30 April should be maintained.

2.17. Ling

Landings of ling (*Molva molva*) in 2012 were 11 800 t, having increased steadily since 2001. Survey indices of harvestable biomass have remained high since 2007. In 2012, the exploitation level had decreased and was at a similar level as in 2004–2008, when survey indices were increasing rapidly.

MRI recommends a TAC of no more than 14 000 t in the quota year 2013/2014, including catches of foreign fleets which have been about 1 200 t in recent years. The basis of the advice is to keep exploitation at a similar level as observed in 2004–2008 and in 2011. Exploratory analytical assessment indicates that these catches would result in fishing mortality close to F_{MSY}.

2.18. Tusk

Landings of tusk (*Brosme brosme*) from Icelandic waters were 7 800 t in 2012. Indices of fishable biomass in the spring survey have increased considerably since 2001. However, recruitment indices peaked in 2006 but have decreased since then, and were in 2013 at the lowest observed value. The tusk stock assessment is based on the Gadget model as recommended by ICES.

The MRI recommends that the catches be no more than 6 300 t in the quota year 2013/2014, including catches of foreign fleets. This advice is based on the assumption that $F_{max}=F_{MSY}$=0.24. It is furthermore recommended that the closure of nursery areas off the southeast and south coast is continued.

2.19. Anglerfish

In 2012, about 2 700 t of anglerfish *(Lophius piscatorius)* were landed from Icelandic waters. The catches have been declining annually since 2009 when they reached their maximum of 4 100 t. Recent surveys and CPUE have indicated a large fishable stock, due to very good recruitment in 1998–2007. The 2012 survey indicated a declining trend in fishable biomass, but the survey in 2013 does not show further decline. However, survey indices show poor recruitment for year classes 2008–2012. Due to the decreasing recruitment in the last five years, the fishable stock will decline considerably in the coming years. The MRI recommends 1 500 t as the TAC for the quota year 2013/2014, and an effort should be made to reduce the bycatch of juvenile anglerfish in the trawl fisheries.

2.20. Lumpfish

In 2012, about 6 000 t of female lumpfish *(Cyclopterus lumpus)* were landed in Iceland, just below the annual average landings in 1971–2011 of 6 100 t. Effort and number of licenses have increased in recent years. A decline in the female biomass index, F_{proxy}, and a record low male abundance index indicate the need of a more precautionary management approach.

The basis of the MRI advice is to keep F_{proxy} at or below the long-term average. The advice is given in two stages: in this report an initial advice is based on the 2013 survey biomass index, but the final advice will be given by end of March 2014 based on the 2013 and 2014 survey biomass indices. If the survey biomass index does not change much, the final advice is around 3 times the initial advice.

MRI recommends an initial TAC of 970 t for the 2013/2014 quota year, or approximately 2 000 barrels. MRI will recommend a final TAC after the 2014 spring survey. Furthermore, it is recommended that data collection and monitoring of the male fishery and lumpfish bycatch in other fisheries be improved.

2.21. Herring

Landings of **Icelandic summer-spawning herring** (*Clupea harengus*) during the fishing season 2012/2013 amounted to 72 000 t. The prevalence of the *Ichthyophonus* infection is still high in the stock but current analysis indicates that mortality because of the infection is less than has been assumed and took place mainly in the first two years 2009–2010. These results were incorporated in this year's assessment and stock prognosis, and the estimates of herring that died in the mass mortalities in Kolgrafafjörður in the winter 2012/2013. The spawning stock is estimated as 495 000 t in the beginning of the 2013/2014 fishing season. The MRI recommends a TAC for 2013/2014 of 87 000 t based on $F_{0.1}$=0.22 .

In 2012, around 121 000 t of **Norwegian spring-spawning herring** were landed by Icelandic vessels, with estimated total international landings of 833 000 t. ICES has recommended a TAC of 619 000 t for 2013, corresponding to a weighted F=0.125. According to the international agreement reached in January 2007, Iceland will have a quota of 90 000 t in 2013. ICES will recommend a TAC for 2014 in autumn 2013.

2.22. Capelin

Following an assessment of the capelin stock in October 2012 a preliminary catch quota of 300 000 t was allocated. In the beginning of February a final TAC of 570 000 t was set for the fishing season 2012/2013. It was based on survey results from January/February. The autumn fishery started in November but only 10 000 t were landed in Nov–Dec. The winter fishery started in the beginning of January 2013 and the landings in Jan–Mar were 541 000 t. The total international landings in the 2012/2013 fishing season were 551 000 t, of which Icelandic vessels landed 463 000 t.

The fishing season 2013/2014 will be based on the year classes from 2011 and 2010. The indices of immature capelin in the annual autumn survey 2012 were very low and do not provide a basis for an initial quota for the fishing season 2013/2014. Therefore, in accordance with the HCR, MRI advices that the fishery is not opened until further acoustic surveys have confirmed sufficient abundance of these cohorts to sustain a fishery with the usual prerequisite of a target remaining spawning stock of 400 000 t in spring 2014.

2.23. Blue whiting

International landings of blue whiting (*Micromesistiius poutassou*) in the Northeast Atlantic in 2012 are estimated around 390 000 t. Icelandic landings were 63 000 t.

The analytical assessment in 2011 indicates a decrease in the spawning stock of about 60% between 2003 and 2011 but is estimated to have increased from 2.8 million t in 2011 to 3.8 million t in 2012 with improved recruitment in 2010 and 2011. ICES recommends a catch quota not exceeding 643 000 t in 2013. ICES will release its advice for 2014 in October 2013.

2.24. Mackerel

International landings of mackerel (*Scomber scombrus*) in the Northeast Atlantic in 2012 are estimated at 930 000 t. Since the mid 2000s mackerel has been observed in the Icelandic EEZ in increasing numbers. This has led to a direct fishery since 2007. In 2012 the Icelandic landings were 149 000 t. The spawning stock increased from 1.7 million t in 2003 to 3.1 million t in 2009. Since then it has decreased and is estimated to be nearly 2.6 million t in 2013. ICES recommended a catch quota of 497 to

542 000 t in 2013 and will assess the stock in the autumn 2013 and release its advice in October for 2014.

2.25. Pearlside

Experimental pelagic trawl fishery for pearlside (*Maurolicus muelleri*) started in 2008 and the landings peaked in 2009 at around 46 000 t. Since then, the landings have decreased and only 9 tonnes were landed in 2012. Very little is known about the biology and stock size of the pearlside and its position in the ecosystem. The MRI recommends that the catch should not exceed 30 000 t in the quota year 2013/2014.

2.26. Greater silver smelt

In 2012 about 9 300 t of greater silver smelt (*Argentina silus*) were landed compared to the historical maximum of 16 400 t in 2010.

The stock is assessed with limited data and must therefore be harvested with caution. The MRI recommends a precautionary TAC of 8 000 t for the quota year 2013/2014. The basis of the advice is the index of fishable biomass from the Autumn survey and preliminary results of the Gadget model. MRI further reiterates last year's advice that the precautionary approach be adopted in the management of the greater silver smelt fishery in order to ensure sustainability of the resource.

2.27. Nephrops

In 2012, 1 914 t of *Nephrops norvegicus* were landed, compared to 2 240 t in 2011. The survey biomass index has decreased since 2008 and is now under the long-term average. CPUE (kg/hour, single rigged) was 63 kg in 2012, compared to 71 and 76 kg in 2011 and 2010, respectively. According to the current assessment, the fishable stock biomass age 6 and older in 2012 is estimated 10 500 t. The stock biomass increased during the last decade from low values around 1995. This increase was considered the combined result of large year classes and a sustainable Fopt management strategy. However, new year classes are measured small and the fishable stock has decreased. MRI recommends a TAC of no more than 1 750 t in the quota year 2013/2014.

2.28. Northern shrimp

In the quota year 2012/2013, fishery for inshore northern shrimp (*Pandalus borealis*) was open in the Snæfellsnes area, Eldey, Arnarfjörður, Ísafjarðardjúp and Skjálfandi. MRI recommends a preliminary TAC of 950 t for the Snæfellsnes area in the quota year 2013/2014, but will recommend TACs for other inshore areas on the basis of stock assessment surveys in autumn 2013.

In 2012, the offshore catch of northern shrimp was 7 339 t, compared to its highest level of 65 000 t between 1995 and 1997. MRI recommends a TAC of 5 000 t for northern shrimp in the offshore areas (excluding the Dohrn Bank area) for the quota year 2013/2014.

2.29. Iceland scallop

The Iceland scallop (*Chlamys islandica*) fishery remained closed during the 2012/2013 fishing season. Survey indices declined drastically between 2001–2008, to a historical minimum. The downward trend in stock abundance is mainly due to increased natural mortality, probably caused by protozoan infestation in adult scallops. Recruitment has been poor and only one detectable year class in the period 2004–2010. MRI therefore recommends a continued closure of the scallop fishery in the quota year 2013/2014.

2.30. Ocean quahog

In 2012 only 16 t of ocean quahog was landed, compared to the maximum of 14 400 t in 2003. Since 1987 a fishery for human consumption has been developing, but annual landings have been variable due to variable effort related to the market. MRI recommends a harvest rate of 2.5% of the estimated stock size corresponding to no more than 31 500 t in the quota year 2013/2014.

2.31. Common whelk

Pot fishing for common whelk (*Buccinum undatum*) started in Breiðafjörður in 1996. In 2012 the total catch amounted to 375 t, compared to 512 t in 2011. According to a survey conducted in 2012, 15 years of fishing has had a negligible effect on the abundance index. MRI recommends a TAC not exceeding 750 t in Breiðafjörður.

2.32. Sea cucumber

In 2012 about 1 400 t of sea cucumber (*Cucumaria frondosa*) were landed. Since 2003 a fishery for human consumption has been developing, but annual landings were minimal until 2008. A maximum of nine fishing licenses are issued in this fishery, three within each of the three defined areas off Iceland. MRI recommends a harvest rate of 10% of the estimated stock size in each surveyed sub-area.

2.33. Sea urchin

In 2012, 135 t of sea urchin (*Strongylocentrotus droebachiensis*) were landed. Harvesting of sea urchin started in 1993 and total landings reached a maximum of 1 500 t in 1994, but declined rapidly and were negligible 1997–2006. Since 2007 the catches have been between 125 and 145 t. Areas with good quality sea urchins are limited in size, which requires a precautionary management approach.

2.34. Whales

In 1986, the International Whaling Commission's (IWC) resolution on a temporary closure of commercial whaling came into effect. In 2006, Iceland resumed commercial whaling on fin whales (*Balaenoptera physalus*) and common minke whales

(*Balaenoptera acutorostrata).* In 2012, 52 minke whales were caught, compared with 58 in 2011. No fin whaling was conducted in 2011 and 2012, but 148 fin whales were caught in 2010.

The common minke whale stock around Iceland (the Central North Atlantic stock) is considered to be in a healthy condition, and historic catches are not thought to have affected the stock appreciably. Decreased abundance in Icelandic coastal waters in recent years most probably reflects shift in distribution within the stock area.

Based on stock assessments conducted by the Scientific Committees of NAMMCO and the IWC, the MRI recommends that annual catches of common minke whales from the Central North Atlantic stock do not exceed 229 animals in the Icelandic continental shelf area (CIC) and 121 animals in the Jan Mayen area (CM). This advice applies for the calendar years 2014 and 2015.

Results from a fin whale sightings survey in 2007 indicate a total population size of 20 600 animals in the East Greenland/Iceland/Jan Mayen area (EGI), which is similar to the 1995 and 2001 surveys.

On the basis of a recent assessment conducted within the Scientific Committees of the IWC and NAMMCO, the MRI recommends annual catches of up to 154 fin whales as sustainable and precautionary for the calendar years 2014 and 2015.

2.35. Seals

In 2012, the reported seal catch and bycatch in Iceland was 204 grey seals (*Halichoerus grypus*), 251 harbour seals (*Phoca vitulina*), 6 harp seals (*Phoca groenlandica*), and 171 seals of unidentified species.

A **grey seal** survey was conducted in 2012, where 4 200 animals were estimated along the Icelandic coast. The stock was estimated as 12 000 animals in 1990. The adopted management plan is to maintain the harbour seal population around 12 000 animals.

According to a survey conducted in 2011, the stock of **harbour seals** was around 11 000 animals. The stock was estimated as 34 000 seals in 1980 but has remained stable since 2003. The adopted management plan is to maintain the grey seal population around 4 100 animals.

Tafla 1.

Tillögur um hámarksafla fiskveiðiárin 2013/2014 og 2012/2013, ásamt aflamarki samkvæmt ákvörðun stjórnvalda fiskveiðiárið 2012/2013 (þús. tonn).
TACs recommended by the Marine Research Institute for the quota years 2013/2014 and 2012/2013, and national TACs for the quota year 2012/2013 (thous. tonnes).

Tegund *Species*	Tillaga 2013/2014 *Recomm. TAC 2013/2014*	Tillaga 2012/2013 *Recomm. TAC 2012/2013*	Aflamark 2012/2013 *National TAC 2012/2013*
Þorskur *(Cod)*	215[1)]	196[1)]	195,4
Ýsa *(Haddock)*	38[1)]	32	36
Ufsi *(Saithe)*	57[1)]	49	50
Gullkarfi *(Golden redfish)*	52	45	45
Litli karfi *(Sebastes viviparus)*	1,5	1,5	-
Djúpkarfi *(Deep sea redfish)*	10	10	10
Úthafskarfi *(Pelagic redfish)*	-[2)]	20[3)]	48(8)[4)]
Grálúða *(Greenland halibut)*	20[3)]	20[3)]	26(14,7)[4)]
Skarkoli *(Plaice)*	6,5	6,5	6,5
Sandkoli *(Dab)*	0,5[5)]	0,5[5)]	0,8
Skrápflúra *(Long rough dab)*	0,2[5)]	0,2[5)]	0,2
Langlúra *(Witch)*	1,1	1,1	1,1
Þykkvalúra (*Lemon sole)*	1,6	1,4	1,4
Steinbítur *(Atlantic wolffish)*	7,5	7,5	8,5
Hlýri *(Spotted wolffish)*	0,9	0,9	-
Íslensk sumargotssíld *(Herring)*	87	67	64
Norsk-íslensk vorgotssíld *(Atlanto-Scandian herring)*	-[2)]	619	619(90)[4)]
Loðna *(Capelin)*	0[6)]	570	570(463)[4)]
Kolmunni (*Blue whiting*)	-[2)]	643	643(113)[4)]
Makríll *(Mackerel)*	-[2)]	497–542	854(123)[4)]
Gulldepla *(Pearlside)*	30	30	-
Blálanga *(Blue ling)*	2,4	3,1	-
Langa *(Ling)*	14	12	11,5
Keila *(Tusk)*	6,3	6,7	6,4
Gulllax *(Greater silver smelt)*	8	8	
Skötuselur *(Anglerfish)*	1,5	1,5	1,8
Hrognkelsi *(Lumpfish)*	0,97[6)]	4,0	-
Humar *(Nephrops)*	1,75	1,9	1,9
Rækja á grunnsl. *(Inshore shrimp)*	0,95[6,7)]	2,35	2,35
Rækja á djúpsl. *(Offshore shrimp)*	5	5	-
Hörpudiskur *(Iceland scallop)*	0	0	0
Kúfskel *(Ocean quahog)*	31,5	31,5	-
Beitukóngur *(Common whelk)*	0,75	0,75	-
Hrefna *(Common minke whale)*[8)]	229	229	229
Langreyður *(Fin whale)*[8)]	154	154	154

[1)] Samkvæmt aflareglu. *According to management plan.*
[2)] Ráðgjöf fyrir almanaksárið 2014 verður veitt í október 2013. *Recommended TAC for calendar year 2014 will be given in October 2013.*
[3)] Aflamark á öllu útbreiðslusvæði stofns fyrir almanaksár. *TAC for the total area of distribution for calendar year.*
[4)] Samanlagt heildaraflamark allra veiðiþjóða og aflamark ákveðið fyrir Ísland (í sviga). *Total TAC* and *national TAC within parentheses.*
[5)] Aflamark verði ekki hærra en sem nemi þeim afla er ætla má að fáist sem aukaafli við aðrar veiðar. *Recommended TAC not to exceed expected bycatch levels caught in other fishing operations.*
[6)] Tillaga um afla í upphafi vertíðar. *Provisional TAC.*
[7)] Svæðið við Snæfellsnes. *Snæfellsnes area.*
[8)] Fjöldi dýra innan íslenska landgrunnsins. *Number of animals within the Icelandic shelf area.*

Tafla 2.

Aðrar tillögur Hafrannsóknastofnunar fyrir fiskveiðiárið 2013/2014.

Additional advice for the quota year 2013/2014.

Þorskur – Við úthlutun aflamarks til íslenskra skipa verði tekið mið af afla erlendra skipa og annars afla sem nú er utan aflamarks.
Lúða – Áframhaldandi bann við beinni sókn og reglugerð til verndunar lúðu verði áfram í gildi.
Skarkoli – Áframhaldandi friðun á hrygningarstöðvum á hrygningartíma.
Sandkoli – Engar beinar veiðar.
Skrápflúra – Engar beinar veiðar.
Steinbítur – Áframhaldandi friðun á hrygningarsvæðum á Látragrunni á hrygningar- og klaktíma.
Blálanga – Þekktum hrygningarsvæðum verði áfram lokað á hrygningartíma.
Langa – Við úthlutun aflamarks til íslenskra skipa verði tekið mið af afla erlendra skipa.
Keila – Við úthlutun aflamarks til íslenskra skipa verði tekið mið af afla erlendra skipa. Áframhaldandi veiðibann á afmörkuðum uppvaxtarsvæðum til verndar smákeilu.
Skötuselur – Leitað verði leiða til að draga úr meðafla ungs skötusels við togveiðar.
Kúfskel – Aflamarki verði úthlutað eftir svæðum með tilliti til stofnstærðar á hverju svæði.
Sæbjúga – Afli fari ekki yfir 10% af áætlaðri stofnstærð hverrar veiðislóðar.

Cod *– Expected catches by foreign fleets and other catches not subject to TAC be subtracted from TAC before allocation of quota to Icelandic vessels.*
Atlantic halibut *– Continued ban on directed halibut fishery and implemented conservation act for protection of the stock.*
Plaice *– Continued closure of spawning areas during spawning season.*
Dab *– No targeted fishery.*
Long rough dab *– No targeted fishery.*
Atlantic wolffish *– Continued closure of spawning areas off the west coast of Iceland (Látragrunn) during spawning season.*
Blue ling *– Continued closure of known spawning areas during spawning time.*
Ling *– Subtract expected catches by foreign fleets from TAC before allocation of quota to Icelandic vessels.*
Tusk *– Subtract expected catches by foreign fleets from TAC before allocation of quota to Icelandic vessels. Continued ban on fishery in nursery areas in order to protect juveniles.*
Anglerfish *– Effort should be made to reduce bycatch of juveniles in trawl fisheries.*
Ocean quahog *– TAC should be divided by areas according to stock size in each area.*
Sea cucumber *– Annual catch not exceeding 10% of estimated biomass within each fishing area.*

1. ENVIRONMENTAL CONDITIONS

Estimates of seasonal conditions in Icelandic waters have been partially based on data saved during the annual spring cruise in May/June. During this cruise, Icelandic waters are sampled to evaluate the general condition of the ocean, marine vegetation, and krill. Emphasis is placed upon comparable sampling from year to year in order to follow changes in the marine environment. Repeat sampling at a smaller scale has been conducted in the same areas in other seasons.

Analysis has shown that seasonal conditions are highly variable between years. Studies during recent decades indicate that warm currents in the northern region support increased total production, but a complex combination of environmental factors influences the food web and the success of exploited stocks in Icelandic waters. The following is a brief discussion of recent seasonal conditions in Icelandic waters. More detailed accounts will be provided in the Marine Research Institute report *Environmental Conditions in Icelandic Waters*, Marine Studies nr. 170 (2013).

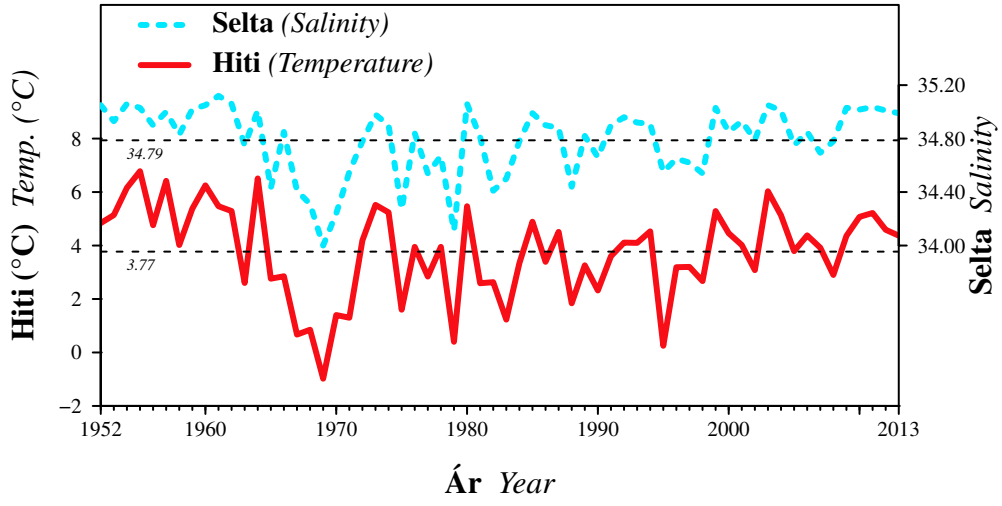
1.1. Temperature and salinity off North Iceland

For more than 50 years annual temperature and salinity measurements have been taken off Siglunes (mynd 1.1). These measurements appear to be a good indication of the general state of the ocean north of Iceland and the influx of warm saline Atlantic water into the region. Following a warm period in the North Atlantic was the so-called Sea Ice Years, 1965–1971, because of cold, low salinity Polar currents entering the Iceland Sea. Since then, hot and cold years have alternated and the years 1979 and 1995 were the coldest. Measurements in the last decade have shown a warming trend in the North Atlantic after 1995. Since 1998 temperature and salinity have been at or above average. From 2006–2008 spring surface (0–50 m) temperatures and salinities were average, but they were well above average from 2009–2013. At greater depth, temperature and salinity have been above average, reflecting the warmer more saline waters to the west and south (figure 1.2).

1.2. Bottom temperature

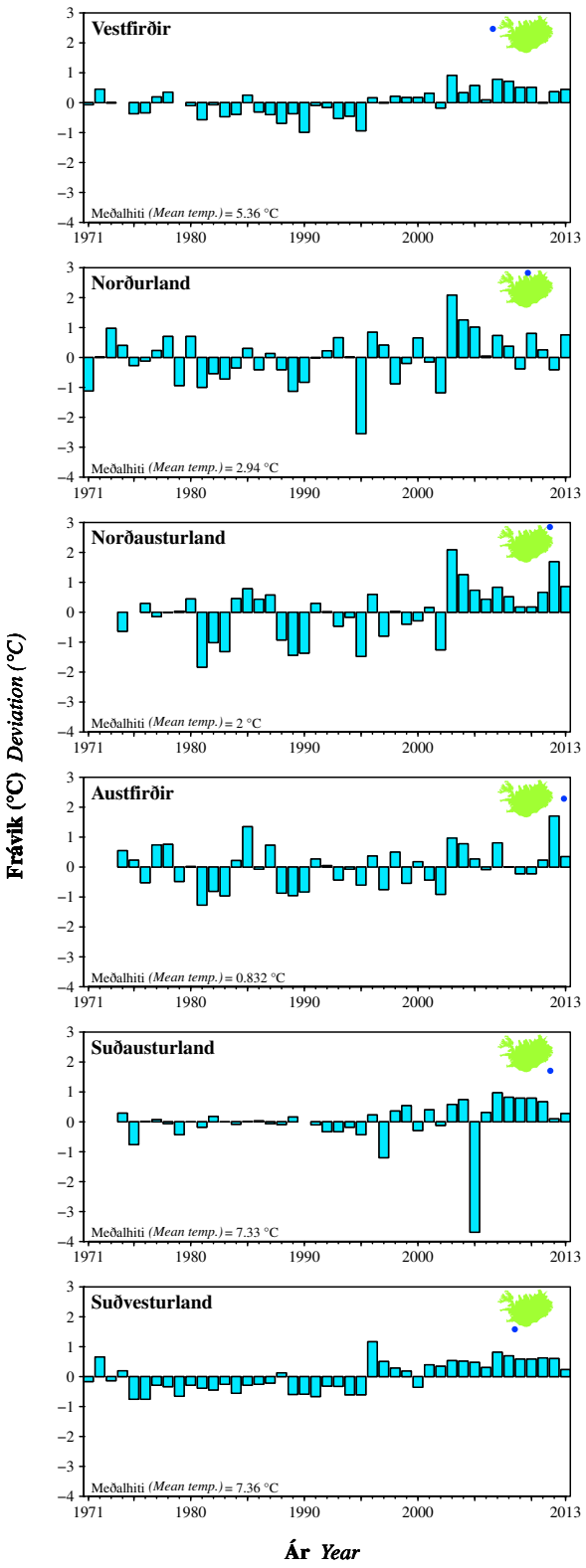
Bottom temperatures in Icelandic waters reflect even heat distribution in upper layers. Bottom temperature is usually lower to the north and east due to cold waters from the north, whereas the southern and western waters are warmed by southern waters. Figure 1.2 shows mean temperature at 50–100 m above the bottom around the country and the northern samples that are from 150–300 m depth.

Bottom temperatures on the shelf are usually lowest from February–March and highest from August–September or later. Annual fluctuation on the shelf is higher in shallow waters than at great depth. Outside the shelf margin bottom temperature is always below 0°C (North Seas deep water). Off the north-central coast (in Eyjafjarðarál, depth as much as 700 m) the cold deep water coming closest to land divides the northern fishing grounds into western and eastern regions. On the slope south and west lands bottom temperature decreases with depth,



Mynd 1.1. Hiti og selta að vori á 50 m dýpi á stöð 3, 20 sjómílur norður af Siglunesi árin 1952–2013. Láréttu línurnar tákna meðaltöl fyrir tímabilið.

Fig. 1.1. Temperature and salinity in spring at 50 m depth at station 3 on the Siglunes section 1952–2013. The horizontal lines indicate the means for the same period.



Mynd 1.2. Frávik frá meðalhita yfir botni (°C) áranna 1971–2013 á mismunandi svæðum umhverfis Ísland í maí/júní.

Fig. 1.2. Temperature anomalies (°C) near bottom in Icelandic waters in May/June for the years 1971 to 2013.

but rarely drops below 4°C.

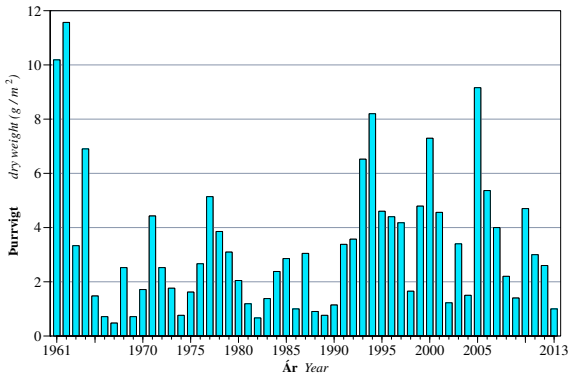
Temperature has been mostly above average for a decade (figure 1.2) in Icelandic waters. An exception was in 2005 when the southeast current shifted for a short period. Measurements in 2013 show the same above average bottom temperature.

1.3. Krill

Krill plays a crucial role in the ecosystem as a primary food source of herring and capelin stocks, but also as the primary food of all other stocks in their larval and fry stages. The abundance of krill is considered important to the survivability of fish just starting to catch their own food. Marine Research Institute (MRI) studies have shown a connection between the abundance of krill southwest of Iceland in the spring and the number of cod fry in August. Although this connection is weak, it is an indication of the ecological connections between species from the lowest to highest parts of the food chain.

Studies aimed at following the long term trends in krill abundance began around 1960. Figure 1.3 show the results of krill abundance measurements taken off North Iceland (Siglunes), from where the most historical data is available.

In 2012 the abundance of krill was close to the historical average but preliminary results from May, 2013 indicate that the abundance of krill in this region is below average.

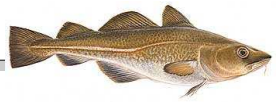


Mynd 1.3. Átumagn (g þurrvigt m^{-2}, 0–50 m) að vorlagi á Siglunes-sniði árin 1961–2013. Súlurnar sýna meðaltöl allra stöðva á sniðinu. Gildið fyrir árið 2013 er bráðabirgðatala sem getur breyst við endanlega úrvinnslu.

Fig. 1. 3. Zooplankton biomass (g dry weight m^{-2}, 0–50 m) in spring at Siglunes section in 1961–2013. The columns show means for all stations at the section. Provisional value for 2013.

2. State of stocks

2.1. COD *Gadus morhua*



2.1.1. Landings, effort and year class distribution

Total landings of Icelandic cod in 2012 were 196 thous. tonnes as compared to 172 thous. tonnes in 2011 (figure 2.1.1 and table 3.1.1). TAC for quota year 2011/2012 set by the catch rule was 177 thous. tonnes but total landings were 185 thous. tonnes. Landings in excess of the catch rule were due to undersized fish, project fund landings and landings by foreign vessels non considered in the catch rule. National TAC and landings by quota year are shown in table 2.1.1 along with landings by foreign vessels.

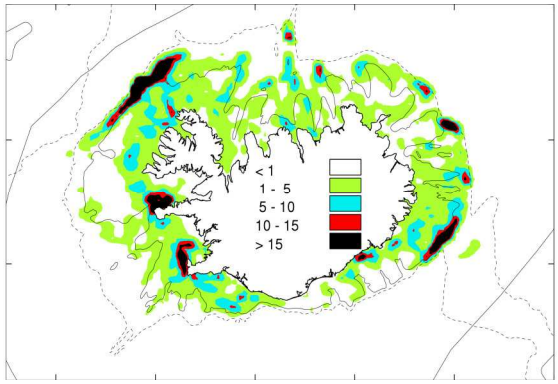
In 2012 landings by gear were: 44% bottom trawl, 36% longline, 9% gillnet, 7% handline and 5% Danish seine (figure 2.1.1). The biggest change in gears in recent years is the increasing use of longline and the decreasing use of gillnets. Gillnet use in 2012 was at an historical low, only half of the 30 year average.

The age distribution of the catch in 2012 was similar to projections (figure 2.1.2 and table 3.1.2). Compared to the last decade, a higher proportion of landings now is older fish.

CPUE was high in all gears in 2012 (figure 2.1.3). Drawing conclusions about the trends in stock size is difficult. On one hand, gears are more efficient and on the other it is difficult to distinguish between targeted effort and landings where effort is made to avoid a high proportion of cod in catch.

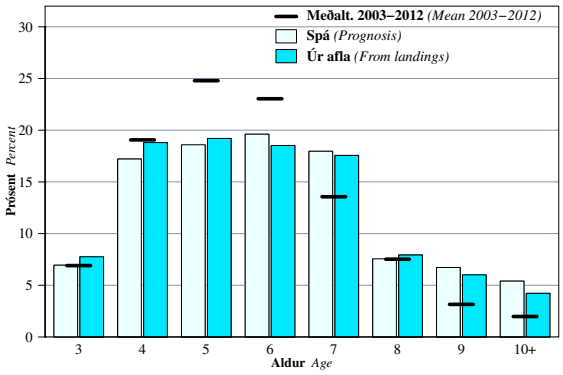
2.1.2. Mean weight and maturity

Mean weight at age in catches (table 3.1.3) has increased over the last 4–5 years and in 2012 it was close to the historical average (1955–2012). Based on the March groundfish survey (SMB) it is predicted that weight at age in catches in 2013 will



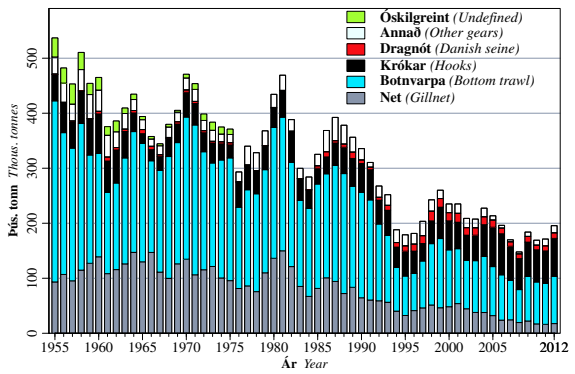
ÞORSKUR. Veiðisvæði við Ísland árið 2012 (tonn/sjm^2). Veiðisvæði mismunandi veiðarfæra eru sýnd í viðauka 5.2.

COD. Fishing grounds in 2012 (tonnes/nm^2). Further information by gear type are given in Appendix 5.2.



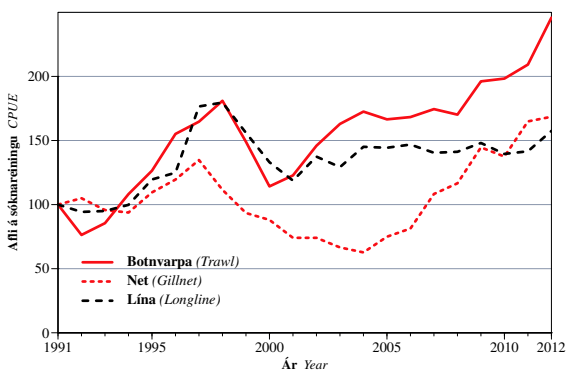
Mynd 2.1.2. ÞORSKUR. Aldursdreifing afla (% af fjölda) 2012, ásamt spá frá í maí 2012. Meðal-aldursdreifing áranna 2003–2012 er jafnframt sýnd.

Fig. 2.1.2. COD. Age distribution in the 2012 catch (% by number), compared to last year's prediction. Mean age distribution 2003–2012 is also shown.



Mynd 2.1.1. ÞORSKUR. Heildarafli (þús. tonna) eftir veiðarfærum árin 1955–2012.

Fig. 2.1.1. COD. Total landings (thous. tonnes) 1955–2012 by gear type.



Mynd 2.1.3. ÞORSKUR. Þorskafli á sóknareiningu eftir veiðarfærum árin 1991–2012 (miðað við 100 árið 1991).

Fig. 2.1.3. COD. Relative changes in CPUE by fishing gear during 1991–2012 (1991=100).

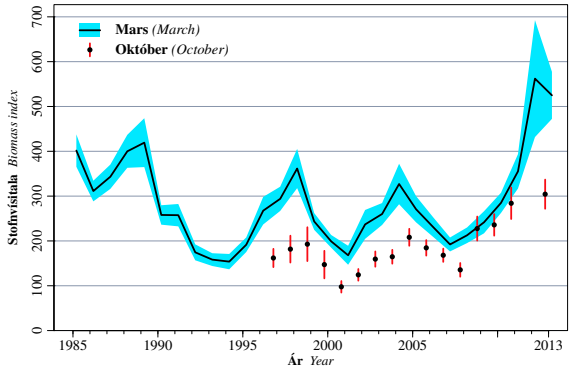
be above average. Average weight of mature cod in the SMB has also increased recently and in 2012 it was above the average since 1985 (table 3.1.4).

Sexual maturity by age is estimated from SMB data (table 3.1.5). Here about half of the cod have reached maturity by age 6. the proportion mature at age 4–5 has been lower this past year than in years past, but the proportion mature at age 7–8 is somewhat above the historical average.

2.1.3. Biomass indices

Total biomass indices for cod in both the SMB and the fall groundfish survey (SMH) have increased substantially in recent years (figure 2.1.4) and are currently at an historical maximum.

All cohorts of cod are sampled in the groundfish surveys and biomass indices for 1–10 year old cod are used in assessments as a measurement of trends in stock size. Indices for cohorts from 2001–2007 according to SMB indicate that they were near or under average size at ages 1–4 (table 3.1.6) but were larger when older (age 6–11). This is mostly due to decreased fishing mortality in recent years.



Mynd 2.1.4. **Þorskur**. Þyngdarvísitölur úr stofnmælingu í mars og að hausti. Skyggða svæðið og lóðréttu línurnar sýna staðalfrávik í mati á vísitölum.

*Fig. 2.1.4. **Cod**. Biomass indices from spring and autumn groundfish surveys. Shaded area and vertical lines show one standard deviation in the estimates.*

TAFLA 2.1.1
Þorskur. Tillögur Hafrannsóknastofnunar um aflahámark, heildaraflamark samkvæmt ákvörðunum stjórnvalda og afli (þús. tonna) 1984–2012/2013.

Cod. TAC recommended by the Marine Research Institute, national TAC and landings (thous. tonnes) 1984–2012/2013.

Ár *Year*	Tillaga *Rec. TAC*	Aflamark *National TAC*	Afli Íslendinga *Landings (Iceland)*	Afli annarra *Landings (others)*	Afli alls *Total catch*
1984	200	242	281	2.0	283
1985	200	263	323	3.0	326
1986	300	300	365	3.0	369
1987	300	330	390	2.0	392
1988	300	350	376	2.0	378
1989	300	325	354	2.0	356
1990	250	300	333	2.0	335
1991[1)]	240	245	243	2.0	244
1991/92	250	265	273	1.9	275
1992/93	190	205	240	0.8	241
1993/94	150	165	196	0.9	197
1994/95	130	155	164	0.7	165
1995/96	25% aflaregla	155	169	0.6	170
1996/97	25% aflaregla	186	201	0.4	202
1997/98	25% aflaregla	218	227	1.1	228
1998/99	25% aflaregla	250	253	1.4	254
1999/00	25% aflaregla	250	256	1.3	257
2000/01	25% aflaregla	220	222	1.3	223
2001/02	25% aflaregla	190[2)]	217	1.3	218
2002/03	25% aflaregla	179	197	7.1	204
2003/04	25% aflaregla	209	219	7.5	226
2004/05	25% aflaregla	205	207	5.6	214
2005/06	Lækka veiðihlutfall	198	202	2.9	205
2006/07	Lækka veiðihlutfall	193[2)]	187	3.7	191
2007/08	20% aflaregla (130)	130	138	3.0	141
2008/09	20% aflaregla (124)	160	168	1.1	169
2009/10	20% aflaregla (150)	155	166	1.5	168
2010/11	20% aflaregla (160)	160	167	2.0	169
2011/12	20% aflaregla (177)	177	183	2.0	185
2012/13	20% aflaregla (196)	195			

[1)] Tímabilið janúar–ágúst 1991. *January–August 1991.*
[2)] Aflareglu breytt. *Amended catch rule.*

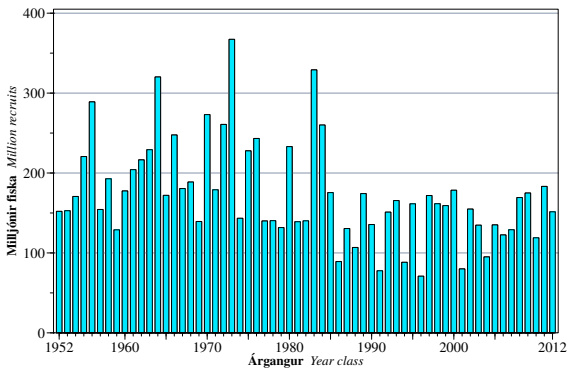
2.1.4. Stock assessment and assumptions

Estimates of stock size are based on age distributed catch data (table 3.1.2) and year class indices from SMB and SMH (table 3.1.6). A natural mortality of 0.2 is used for all cohorts age 3 and older. An ADCAM model provides this estimate but a few other models are run that have different assumptions regarding error terms (Appendix 5.1).

Reference biomass (age 4 and older), based on mean weight by age in landings, has been used to calculate TAC in accordance with the catch rule. Mean weight by age in the spawning stock is based on data for fish age 7 and younger from the SMB and for fish age 8 and older from landings.

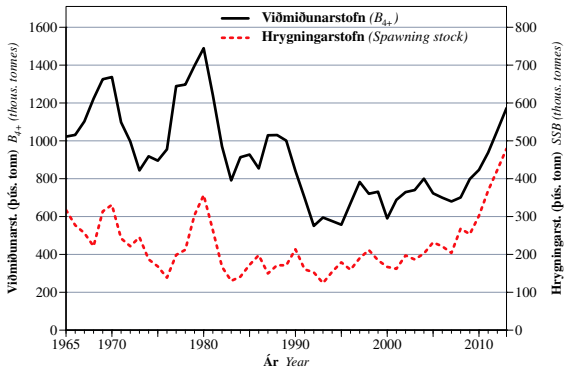
In 2010 the reference points ($B_{trigger}$) and (B_{lim}) were determined for Icelandic cod. These reference points are relative to the spawning stock and the cautionary threshold is 125 thous. tonnes which is an historical minimum and the $B_{trigger}$ is 220 thous. tonnes. According to the catch rule, the harvest rate is decreased if the spawning stock goes below $B_{trigger}$.

To evaluate TAC for the coming year the mean



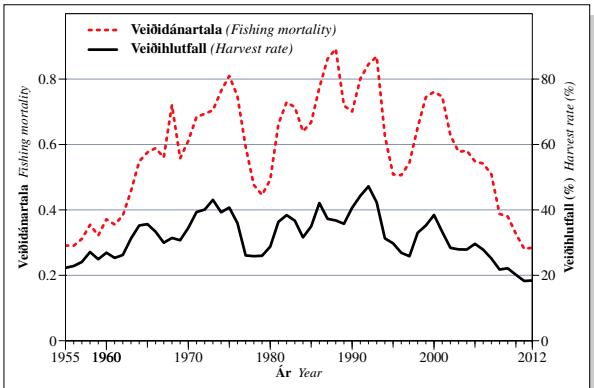
Mynd 2.1.5. **Þorskur.** Áætluð stærð þorskárganganna 1952–2012. Fjöldi við þriggja ára aldur (í milljónum).

*Fig. 2.1.5. **Cod.** Estimated year class size 1952–2012 at age 3 (in millions).*



Mynd 2.1.6. **Þorskur**. Stærð viðmiðunarstofns (fjögurra ára og eldri) og hrygningarstofns á hrygningartíma frá árinu 1965 í þús. tonna.

*Fig. 2.1.6. **Cod**. Reference- (ages 4+) and spawning stock biomass at spawning time since 1965 (thous. tonnes).*



Mynd 2.1.7. **Þorskur.** Veiðihlutfall og veiðidánarstuðlar ($F_{5–10}$) frá árinu 1965.

*Fig. 2.1.7. **Cod.** Harvest rate and fishing mortality ($F_{5–10}$) since 1965.*

weight by age in catches in 2013 is estimated based on the mean weights recorded in the SMB in 2013.

2.1.5. Status and projections

Mean size of cohorts from 2002–2009, which are now the bulk of the spawning and reference stocks, is about 139 million age 3 recruits (figure 2.1.5 and table 3.1.7), or 79% of the average of year classes from 1955–2012 which is 176 million. The 2010 cohort is weak or just under 120 million but the 2011 cohort is average at about 180 million. Preliminary measurements of the 2012 cohort indicate that it is below average at 150 million.

According to the stock assessment, the reference biomass was about 1170 thous. tonnes and the spawning stock was about 480 thous. tonnes in the beginning of 2013 (figure 2.1.6 and table 3.1.7). The reference biomass has increased by almost 55% in the last 6 years and is now considered to be larger than any time in the last three decades. The spawning stock is twice as large as it has been for most of the last decade and has not been so large since the early 1970s.

Harvest rate (landings as a proportion of the reference biomass) and mean fishing mortality of 5–10 year old fish are measurements of fishing pressure. Harvest rate describes total effort on the stock and fishing mortality is an indicator of pressure on older cohorts. When gillnetting is uncommon, as it has been recently, fishing mortality is low in relation to harvest rate. The harvest rate has fallen over the last decade from 35–40% to about 20%. Fishing mortality has decreased from 0.75 in 2000 to 0.26 in 2013 (figure 2.1.7 and table 3.1.7) and is now at an historical minimum.

Since recruitment over the last decade has been below average, the growth in stocks has clearly been caused by decreased fishing pressure. Decreased pressure allows cohorts to remain in the reference biomass longer. Consistent with this, the proportion of older fish is larger than in previous decades and the spawning stock as grown more than the reference biomass (figure 2.1.6).

In the 2012 assessment the reference biomass was estimated at about 1073 thous. tonnes at the beginning of the year (now estimated at about 1054 thous. tonnes) and spawning stock about 417 thous. tonnes (now 423 thous. tonnes).

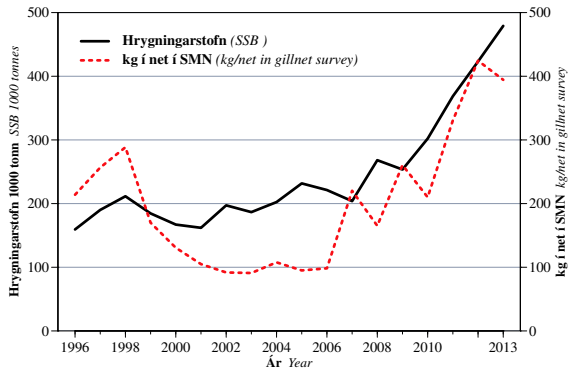
In the assessment indices from both the SMB and SMH are used as input data for models. Estimated stock size of reference biomass in 2013 is somewhat lower when only the SMB index is used and somewhat higher when only the SMH index is used. When only age distributed landings are used, the fishing mortality is higher and stock increase is somewhat less than when both landings and reference points are used.

A gillnet survey (SMN) has been conducted annually since 1996 and it provides an indicator of the size of the spawning stock, though it is not used in the assessment. Although the SMN indices are rather different from the estimates of spawning stock biomass, both have grown considerably over the last few years (figure 2.1.8).

Biomass projections (figure 2.1.9) include uncertainty in the description of trends in mean weight and size estimates of developing year classes as well as other causes of skew. Projections until the year 2017 are shown and current biomass estimates describe all the cohorts that will constitute the stock until that time.

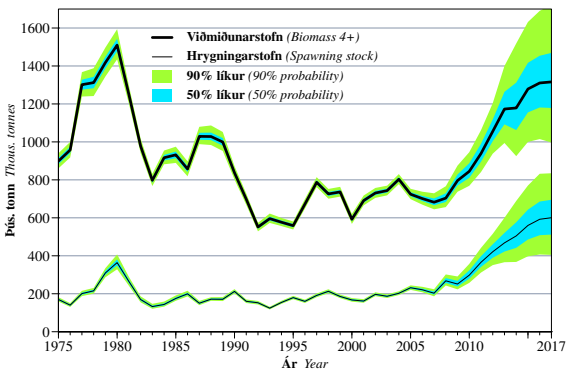
Projections indicate that if the catch rule is followed both the spawning and reference biomasss will grow in coming years (figure 2.1.9). However, that growth will be less than that which has occurred in recent years. TAC will most likely increase to about 250 thous. tonnes by 2017. There is considerable uncertainty, though, so there is some probability that the stock and landings will decrease.

It is expected that older fish will be a higher proportion of landings (figure 2.10). It is expected that fish 10 years and older will exceed 10%; such a high percentage has not been seen since 1983 when gillnetting accounted for nearly three times the



Mynd 2.1.8. **Þorskur**. Stærð hrygningarstofns samkvæmt stofnmati og þróun aflabragða í stofnmælingu með netum 1996–2013.

*Fig. 2.1.8. **Cod**. Spawning stock biomass according to stock assessment and average catches in the gillnet survey 1996–2013.*



Mynd 2.1.9. **Þorskur.** Stærð hrygningar- og viðmiðunarstofns frá árinu 1975 ásamt framreikningum til ársins 2017 miðað við að afli verði samkvæmt aflareglu.

*Fig 2.1.9. **Cod.** Spawning and reference stock size from 1975 and projection to 2017 based on harvest control rule.*

proportion of landings that it does today.

In recent years, there have been limits on mesh size and closures of spawning grounds during the spawning season. In light of the growing proportion of large cod, in the next few months, the MRI will evaluate the necessity for these limits and closures.

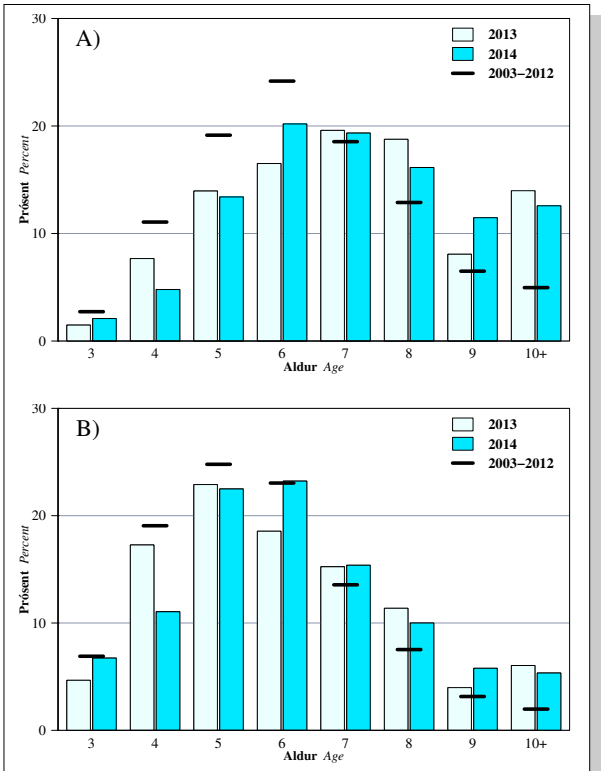
TAFLA 2.1.2

Þorskur. Áhrif á áætlaða stofnstærð (í þús. tonna) miðað við veiðar samkvæmt aflareglu.

***Cod.** Projection of reference stock and spawning stock biomass (thous. tonnes) based on adopted harvest control rule.*

2013				2014				2015	
Áætl. afli *Pred. landings*	Viðm. stofn *B4+*	Hrygn. stofn *SSB*	*F*[1)]	Afla-mark *TAC*	Viðm. stofn *B4+*	Hrygn. stofn *SSB*	*F*[1)]	Viðm. stofn *B4+*	Hrygn. stofn *SSB*
197	1173	479	0.26	215	1211	535	0.26	1317	600

[1)] Meðalveiðidánartala 5–10 ára þorsks. *Average fishing mortality of age groups 5–10.*



Mynd 2.1.10. **Þorskur.** Spá um hlutfallslega aldursdreifingu í aflanum í þyngd (A) og í fjölda (B) árin 2013–2014 ásamt meðalaldursdreifingu áranna 2003–2012.

*Fig. 2.1.10. **Cod**. Prognosis of percentage age distribution by weight (A) and by numbers (B) in the 2013 and 2014 catches. Mean age distribution during the period 2003–2012 is also shown.*

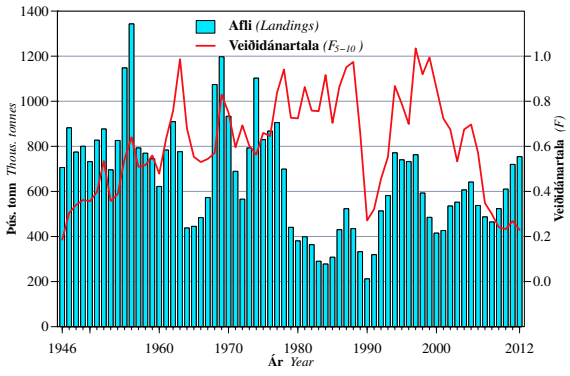
2.1.6. Advice

According to the current stock estimate a 20% harvest control rule, in which the current year's TAC is considered, leads to a TAC of 215 thous. tonnes in the quota year 2013/2014 (table 2.1.2). The MRI emphasizes that before vessel quotas can be allotted it is necessary to incorporate estimates of expected landings that are outside the TAC system. It is estimated that these landings could total about 7 000 tonnes in the next quota year.

2.1.7. Cod stocks in the Barents Sea

Landings of cod from the stocks in the Barents Sea from WWII until 1980 averaged about 800 thous. tonnes (figure 2.1.11). In the 1980s these landings averaged 350 thous. tonnes despite heavy fishing. Since the 1990s these landings have been 570 thous. tonnes on average. Icelanders fished for cod in the Barents Sea and around Svalbard in the first part of the twentieth century but then ceased for a long period ending in 1993. In 1998–2012 Icelandic landings have increased from about 1 500 tonnes to just under 18 thous. tonnes.

Recruitment has been at or near average for the last decade, fishing mortality has decreased to less than 0.25 and stocks have grown. ICES recommends a TAC according to a catch rule amounting to 993 thous. tonnes in 2014. Fishing mortality would then be around 0.35.

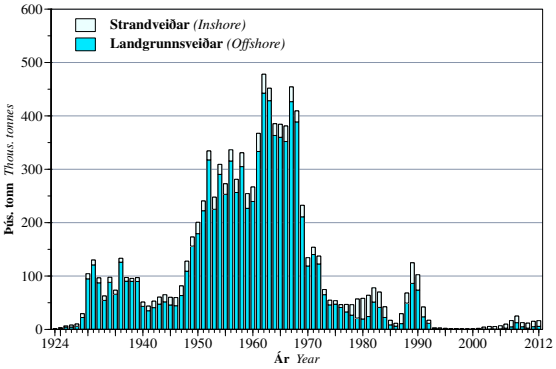


Mynd 2.1.11. **Þorskur í Barentshafi.** Heildarafli (þús. tonna) og veiðidánartölur (F) 5–10 ára árin 1946–2012.

Fig. 2.1.11. ***Northeast Arctic Cod.*** *Annual landings (thous. tonnes) 1946–2012 and mean F_{5-10} during the same period.*

2.1.8. Cod stocks off Greenland

Cod fishing on the Greenland shelf began in earnest in 1925 and landings in 1931 were about 20 thous. tonnes. Landings were small from 1940–1945 after which time they increased to a peak in 1962 at about 450 thous. tonnes. Landings were between 350–430 thous. tonnes until 1968, then declined rapidly to less than 100 thous. tonnes in 1973 (figure 2.1.12). Landings have been small since then except for the periods 1979–1980 and 1988–1990. The increased landings in these years was due to large cohorts from 1973, 1984 and 1985. From 1990 until 2001 landings were insignificant, often less than 1 000 tonnes. From 1998–2008 landings increased yearly, reaching a peak in 2008 at 25 thous. tonnes. This increase in landings until 2008 was partially due to the 2003 cohort, which was estimated at one third the size of the 1984 cohort at age 3. Landings last year exceeded 16 thous. tonnes, of which 11 thous. tonnes were caught in the fjords of western Greenland. The 2012 stock assessment indicates that the size of the 2003 cohort has decreased significantly in Greenlandic waters. ICES recommends that cod fishing in Greenlandic waters remain limited.



Mynd 2.1.12. **Þorskur við Grænland.** Heildarafli (þús. tonna) árin 1924–2012.

Fig. 2.1.12. ***Greenland cod.*** *Total landings (thous. tonnes) since 1924.*

2.2. HADDOCK *Melanogrammus aeglefinus*

2.2.1. Landings, effort and age distribution in landings

Haddock landings in 2012 were about 46 thous. tonnes as compared to 49 thous. tonnes in 2011. For the quota year 2012/2013 the MRI recommended a TAC of 32 thous. tonnes but the actual TAC was 36 thous. tonnes (table 2.2.1). In the first eight months of the current quota year a total of 32 thous. tonnes was landed as compared to the 39 thous. tonnes landed in the first eight months of 2011/2012.

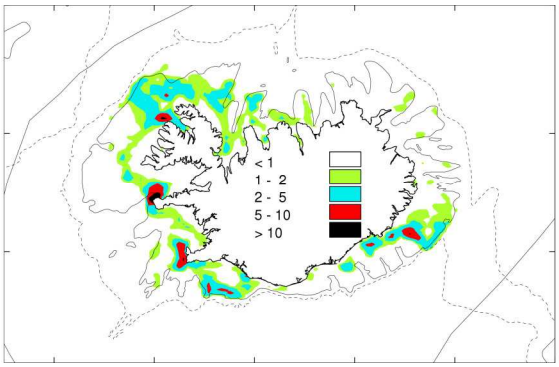
Figure 2.2.1 shows haddock landings by gear from 1982–2012 and landings since 1950 are listed in table 3.2.1. Since 1995 haddock has been caught increasingly by longline and Danish seine, rather than bottom trawl. In 2012 bottom trawlers landed 44% of haddock, longlines 41%, Danish seine 13% and other gears took 2%. Less than 1% of haddock landings were caught in gillnets this year, compared to 10–25% from 1982–1993.

The age distribution of catch in 2012 is presented in figure 2.2.2 and landings in numbers by age are in table 3.2.2. The 2007 cohort was most important in 2012 or 42% of biomass and 49% in numbers. Fish age 8+ were 30% of landings by weight but these were only 10% in the years 1979–2011.

Results of the study of haddock discard indicates that from 1991–1998 discards were 8–20% of landings but 2–6% in the last 10 years. Discards in 2012 are thought to be little as in previous years.

TAFLA 2.2.1.
ÝSA. Tillögur Hafrannsóknastofnunar um aflahámark, heildar-aflamark samkvæmt ákvörðunum stjórnvalda og afli (þús. tonna) fiskveiðiárin 1991/1992–2012/2013.
***HADDOCK.** TAC recommended by the Marine Research Institute, national TAC and landings (thous. tonnes) in the quota years 1991/1992–2012/2013.*

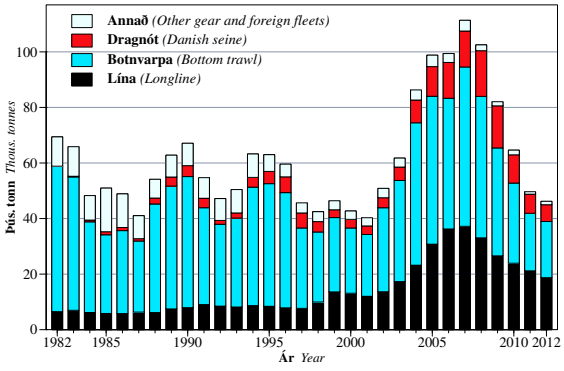
Ár *Year*	Tillaga *Rec. TAC*	Aflamark *National TAC*	Afli Íslendinga *Landings (Iceland)*	Afli annarra *Landings (others)* [1]	Afli alls *Total landings*
1991/92	50	50	47	1	48
1992/93	60	65	47	1	48
1993/94	65	65	56	1	57
1994/95	65	65	60	1	61
1995/96	55	60	53	1	54
1996/97	40	45	50	1	51
1997/98	40	45	37	1	38
1998/99	35	35	45	1	46
1999/00	35	35	41	1	40
2000/01	30	30	39	1	40
2001/02	30	41	44	1	45
2002/03	55	55	55	1	56
2003/04	75	75	78	1	79
2004/05	90	90	96	1	97
2005/06	105	105	97	1	98
2006/07	95	105	100	2	102
2007/08	95	100	110	1	111
2008/09	83	93	89	1	90
2009/10	57	63	68	1	69
2010/11	45	50	50	0	51
2011/12	37	45	49	0	50
2012/13	32	36			



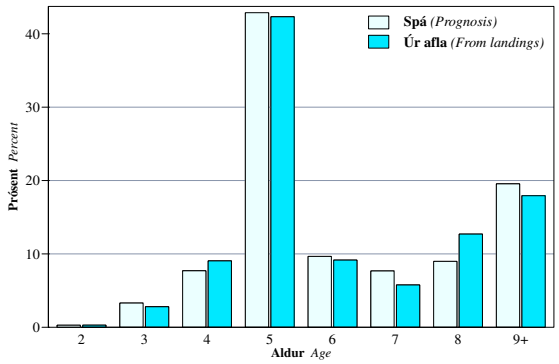
ÝSA. Veiðisvæði við Ísland árið 2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).
HADDOCK. Fishing grounds in 2012. Dark areas indicate highest catch (tonnes/nmi^2).

2.2.2. Mean age and maturity

Mean weight at age (table 3.2.3) is calculated from spring groundfish survey (SMB) data. Mean weight was very low from 2004–2009 but increased significantly from 2010 until 2013. Mean weight of age six and older haddock is near average in 2013 and above average for younger haddock. Mean weight in the haddock stock is variable and usually lower in large cohorts. The 2003 cohort was very large and therefore, very light by age. The youngest cohorts are estimated to be small and so their average weights are higher than those seen in recent years. The low average weight of large cohorts is observed already at two years of age but after that, growth is often similar to that of small cohorts. Between 2005–2009 growth across ages was slow, but the haddock stock was large. In the years 2010–2012 growth rate increased significantly.

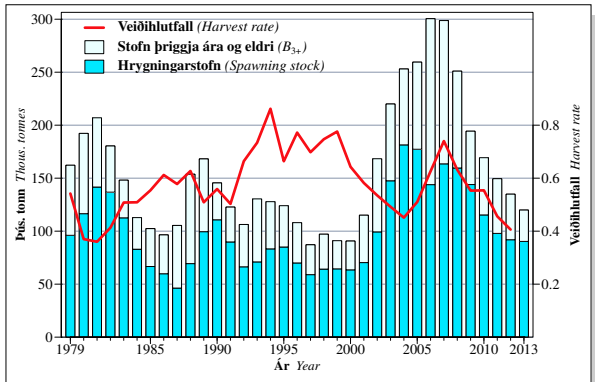


Mynd 2.2.1. ÝSA. Afli í þús. tonna eftir veiðarfærum árin 1982–2012.
Fig. 2.2.1. HADDOCK. Total landings (thous. tonnes) 1982–2012 by gear type.



Mynd 2.2.2. ÝSA. Aldursdreifing í afla 2012 (% af þyngd). Spá frá maí 2012 og mat ári síðar byggt á gögnum úr afla.

Fig. 2.2.2. HADDOCK. Age distribution in the 2012 catch (% by biomass). Prognosis in May 2011 and estimate 2012 based on samples from landings.



Mynd 2.2.4. ÝSA. Stærð hrygningarstofns, stofnstærð 3 ára og eldri ýsu 1979–2013 og veiðihlutfall (afli/viðmiðunarstofni)1979–2011.

Fig. 2.2.4. HADDOCK. Biomass of spawning stock, biomass of ages 3 and older in 1979–2013 and harvest rate (catch/reference biomass) in 1979–2011.

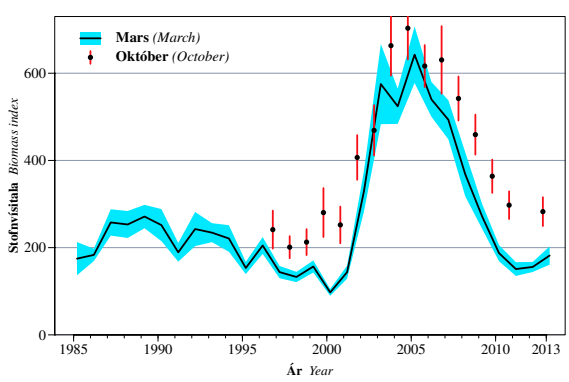
Mean weight in landings (table 3.2.4) follows the mean weight in the survey rather well. Mean weight of the youngest year classes is much higher than in the survey, however, fishing effort only targets fish that have reached a certain size.

Maturity by age is estimated from SMB data (table 3.2.5). Proportion mature was low in the years 1985–1990, high from 1991–2002 but has decreased since then. This decrease seems to be due to the increasing proportion of haddock from the north where the maturity proportion is considerably lower than to the south, although the growth rate is similar.

2.2.3. Groundfish surveys

All ages are observed in the groundfish survey so an accurate estimate of the year class is attainable within the first year of life.

Age disaggregated indices from groundfish surveys are shown in tables 3.2.6 and 3.2.7. In the SMB cohorts 1998–2000, 2002, 2003 and 2007 were large, cohorts 2001, 2008–2012 were small and cohorts 2004–2006 were close to average. Total biomass indices from the surveys (figure 2.2.3) increased from 2001–2005 when the biomass from large cohorts from 1998–2000 increased rapidly. Total biomass indices were very high from 2004–2007 and proportional measurement error was low due to the distribution of haddock. The index rose quickly from 2007–2010 but has not changed much since then despite poor recruitment.



Mynd 2.2.3. ÝSA. Heildarvísitölur (í þyngd) úr stofnmælingum í mars og október. Skyggða svæðið og lóðréttu línurnar sýna eitt staðalfrávik í mati á vísitölunum.

Fig. 2.2.3. HADDOCK. Total biomass indices in the Icelandic groundfish surveys in March (line) and October (dots). Shaded area and vertical lines show one standard deviation in the estimate.

2.2.4. Stock assessment assumptions

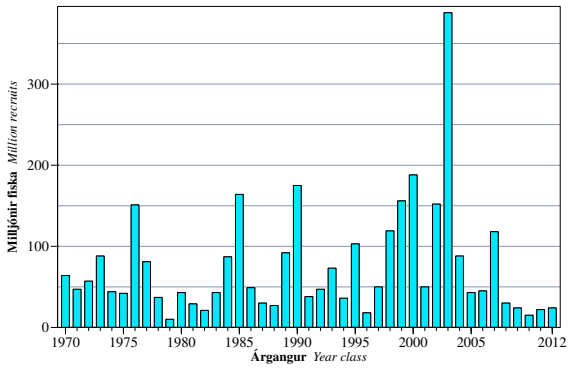
Various models, which use age disaggregated landings data and indices from SMB and fall groundfish survey (SMH) data, are used in the estimation of haddock stocks. The assumed mortality rate from other causes than recorded landings is 0.2 for the season. In projections it is assumed that the growth rate in 2013 will be similar to that in 2012 when it was above the average from the years 1985–2011. Furthermore, it is known that slow-growing cohorts enter the harvest later. It is further assumed that landings in the first 8 months of 2013 will be 25 thous. tonnes.

2.2.5. Stock status and prognosis

All assessment models show that the haddock stock is declining, average cohorts are decreasing and being replaced by small ones. There is, however, some difference between the SMB-based models and the SMH-based models. Models based on the SMB show a smaller stock, which is to be expected considering that SMB indices have decreased faster than the SMH indices. A final estimate of the stock is based on a model that uses both data sets.

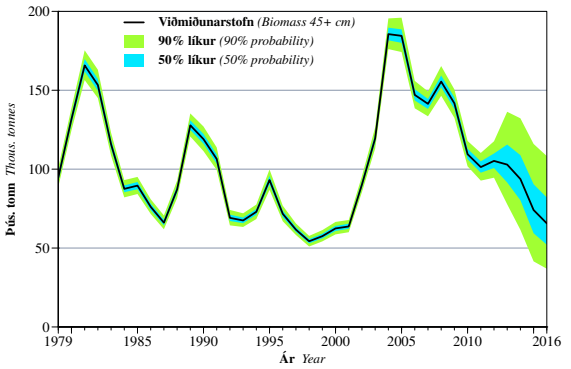
Three year and older haddock at the beginning of 2013 is estimated at 120 thous. tonnes and the spawning stock at 90 thous tonnes (figure 2.2.4 and table 3.2.8). In 2012 haddock harvest rate (figure 2.2.4 and table 3.2.8) was about 41% but the harvest rate control rule target is 40%. The predicted harvest rate in 2013 is about 34% if landings in 2013 are 38 thous. tonnes (table 2.2.2).

Cohorts 2008–2012 are considered small (figure 2.2.5), on average about 23 million age two recruits.



Mynd 2.2.5. Ýsa. Áætluð stærð ýsuárganganna 1970–2012. Fjöldi við tveggja ára aldur (í milljónum).

Fig. 2.2.5. Haddock. Estimated size of year classes 1970–2012 at age 2 (in millions).



Mynd 2.2.7. Ýsa. Stærð viðmiðunarstofns frá árinu 1979 ásamt framreikningum til ársins 2016 miðað við að afli verði samkvæmt aflareglu.

Fig 2.2.7. Haddock. Reference biomass (45 cm and larger) from 1979 and projection to 2016 based on harvest control rule.

This corresponds to about 20 thous. tones maximum catch from each cohort.

The 2013 assessment is slightly more optimistic than the 2012 assessment, both in terms of population size and mean weight at age.

It is expected that the 2007 cohort and age 9 and older fish will provide the larger part of the catch in 2013 (62%) and 2014 (54%) (figure 2.2.6).

In previous years, the estimates of growth rate were the main uncertainty in the assessment. There is much uncertainty regarding growth in coming years but also in the size of cohorts, which is seen in the more than 20% difference between the assessment based on SMB and that of SMH.

2.2.6. Advice

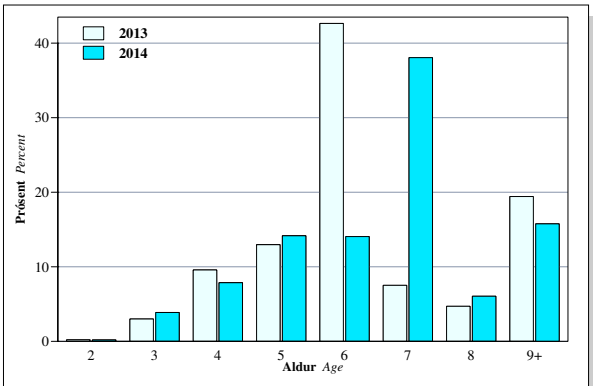
Table 2.2.1 shows TAC recommendations from MRI, national TAC and landings since 1984.

At the request of the Minister of Fisheries MRI has been developing a management plan and a harvest control rule (HCR) for haddock for the last few years. This work was completed in March, 2013 with an ICES evaluation of the proposal. The harvest rule was deemed to be in accordance with a precautionary approach and will promote maximum yield from the haddock stock of Iceland. The harvest rule was formally adopted by the government in April, 2013.

According to the HCR, the TAC for the next quota year is 40% of estimated biomass 45 cm larger haddock (reference biomass) in the beginning of the next calendar year, which was estimated at 96 thous. tonnes (table 3.2.8). The reference biomass is, on average, similar to the spawning stock but is not subject to the same variation in maturity proportion that would lead to unnecessary variation in TAC.

The reference point (B_{lim}) of the spawning stock is defined as the historical minimum of 45 thous. tonnes. The reference point ($B_{trigger}$) was defined in 2013 as the same. According to the HCR, harvest rate is decreased when the spawning stock drops below $B_{trigger}$.

According to the current assessment, a 40% HCR results in a TAC of 38 thous. tonnes in quota year 2013/2014. The expected effect of this on the development of the haddock stock are shown in table 2.2.2 and figure 2.2.7 shows projected spawning stock biomass until 2016 if the HCR is followed.



Mynd 2.2.6. Ýsa. Spá um aldursdreifingu (% af þyngd) í afla 2013 og 2014.

Fig. 2.2.6. Haddock. Prognosis of percentage age distribution (in biomass) in 2013 and 2014 landings.

TAFLA 2.2.2.

Ýsa. Áhrif á áætlaða stofnstærð (í þús. tonna) miðað við veiðar samkvæmt aflareglu.

***Haddock.** Projection of stock and spawning stock biomass (thous. tonnes) based on adopted harvest control rule.*

2013				2014			2015	
Áætl. afli *Pred. landings*	Stofn 3+ *B3+*	Hrygn. stofn *SSB*	*F*[1)]	Afla-mark *TAC*	Stofn 3+ *B3+*	Hrygn. stofn *SSB*	Stofn 3+ *B3+*	Hrygn. stofn *SSB*
38	120	90	0.32	38	105	88	88	72

[1)] Meðalveiðidánartala 4–7 ára ýsu. *Mean fishing mortality of age groups 4–7.*

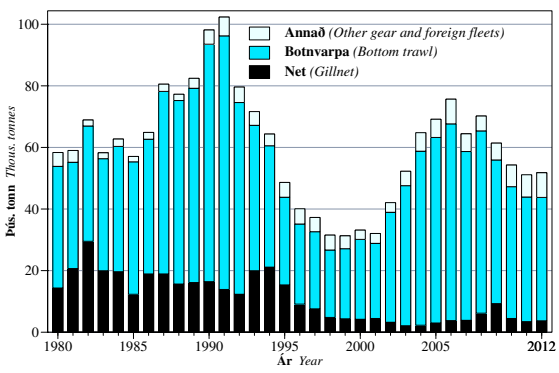
2.3. SAITHE *Pollachius virens*

2.3.1. Landings and year class distribution

Saithe landings in 2012 were just under 52 thous. tonnes, around 700 tonnes more than in 2011 (figure 2.3.1 table 3.3.1). In the last decade, Icelandic landings reached a minimum of just over 30 thous. tonnes in 1998–2001. From 2001 landings increased to 76 thous. tonnes in 2006, but fell again after that. Landings in quota year 2011/2012 were just under 51 thous. tonnes but the TAC was 50 thous. tonnes (table 2.3.1).

In 2012 bottom trawls accounted for 77% of the total while 7% was caught by gillnet, which was about average since 2000. A significant change in preferred saithe gear was seen in the 1990s when gillnet proportions went from 26% between 1982–1996 to less than 10% after that period.

Landings by age in 2012 are shown in figure 2.3.2, along with predictions from the 2012 assessment. Catch in numbers at age from 1980–2012 is in table 3.3.2. In 2012 age 3 saithe were 7% of landings and age 4 were about 30%. Less age 4 saithe was caught than expected and the proportion of 9 year old and older saithe was higher than expected.



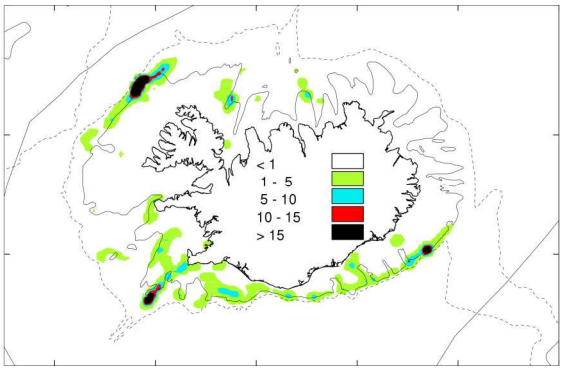
Mynd 2.3.1. **UFSI**. Heildarafli (þús. tonn) árin 1982–2012 eftir veiðarfærum.

*Fig. 2.3.1. **SAITHE**. Total landings (thous. tonnes) 1982–2012 by gear type.*

2.3.2. Mean weight and maturity

Mean weight at age was unusually low in 2005–2009 but has increased, especially among 6–8 year old saithe which are now close to the historical average (table 3.3.3). For saithe, there is a negative correlation between cohort size and mean weight. Also, there are observations where the mean weight of a cohort stagnates or decreases with age. Such changes have been interpreted as immigrations events with a large number of slow-growing saithe entering Icelandic waters. It is difficult, though, to distinguish between density and environmental factors or recruitments from other waters as a cause for decreased mean weight.

Mean weight of saithe in the SMB shows a similar trend as weight in landings (tables 3.3.3 and



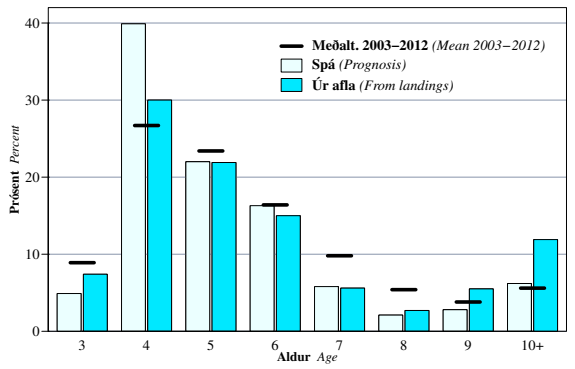
UFSI. Veiðisvæði við Ísland árið 2012. Öll veiðarfæri sýnd. Dekkstu svæðin sýna mesta veiði (tonn/sjm^2).

***SAITHE**. Fishing grounds in 2012. All gears. The dark areas indicate highest catch (tonnes/nmi^2).*

TAFLA 2.3.1.
UFSI. Tillögur Hafrannsóknastofnunar um aflahámark, heildaraflamark samkvæmt ákvörðunum stjórnvalda og afli (þús. tonna) 1984–2012/2013.
***SAITHE**. TAC recommended by the Marine Research Institute, national TAC and landings (thous. tonnes) 1984–2012/2013.*

Ár *Year*	Tillaga *Rec. TAC*	Aflamark *National TAC*	Afli Íslendinga *Landings (Iceland)*	Afli annarra þjóða *Landings (others)*	Afli alls *Total landings*
1984	65	70	60	2	63
1985	60	70	55	2	57
1986	60	70	64	1	65
1987	65	70	78	2	81
1988	75	80	74	3	77
1989	80	80	80	3	82
1990	90	90	95	3	98
1991[1)]	65	65	69	2	71
1991/92	70	75	86	2	88
1992/93	80	92	76	2	78
1993/94	75	85	67	2	69
1994/95	70	75	50	1	61
1995/96	65	70	40	1	41
1996/97	50	50	37	1	38
1997/98	30	30	32	1	33
1998/99	30	30	31	1	32
1999/00	25	30	30	0	30
2000/01	25	30	32	0	32
2001/02	25	37	36	0	36
2002/03	35	45	47	0	47
2003/04	50	50	56	0	56
2004/05	70	70	70	1	71
2005/06	80	80	78	0	78
2006/07	80	80	66	0	66
2007/08	60	80	68	0	68
2008/09	50	65	62	0	62
2009/10	35	50	58	0	58
2010/11	40	50	52	1	52
2011/12	45	52	50	1	51
2012/13	49	50			

[1)] Tímabilið janúar–ágúst 1991. *January–August 1991.*



Mynd 2.3.2. **Ufsi**. Aldursdreifing í afla 2012 (% af fjölda) borin saman við spá frá í fyrra. Meðalaldursdreifing áranna 2003–2012 er jafnframt sýnd.

*Fig. 2.3.2. **Saithe**. Age distribution in the 2012 catch (% by number) compared to last year's prediction. Mean age distribution (2003–2012) is also shown.*

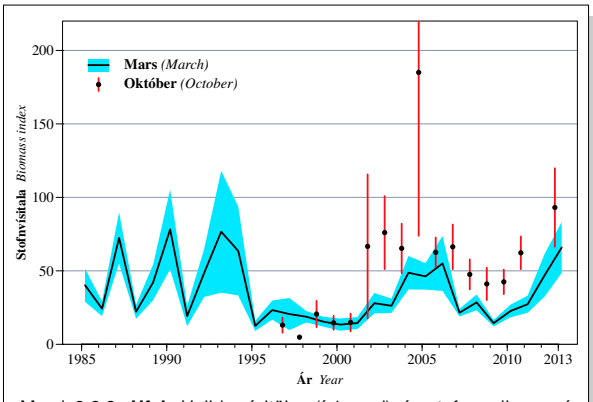
3.3.4). In the survey there is much more variation of mean weights within cohorts than in landings. In the assessment, the size of spawning and reference biomass are calculated using the weight at age in landings.

Mean weight of 4–9 year old saithe in landings in 2013 is predicted by a model using the weight of each cohort in landings from the previous year and weight in surveys of the current year as predictors. Mean weights of 3 and 10–14 year old saithe are estimated from the averages of these in the last 3 years. In projections it is assumed that mean weights in landings will be similar in coming years.

Information about maturity at age comes from surveys (table 3.3.5), there is considerable variation from year to year. This is due to where saithe are caught in surveys. Maturity is estimated with a model using SMB data and projections use the results of this model for the current year.

2.3.3. Groundfish survey

Saithe is poorly sampled by bottom trawl because it is a schooling fish that that is often distributed well above the bottom. This is reflected in varying survey indices from year to year, especially in 1996 (figure 2.3.3). Variation in survey indices between years is the main source of uncertainty in the assessment of saithe. Despite the poor sampling of saithe in the survey, comparison of previous years shows that the SMB indices are usable (table 3.3.6) for estimation of stock size. Total SMB biomass indices were rather high in 2004–2006, about 50% lower in 2007–2011 and high again in 2012–2013 (figure 2.3.3). The SMH and CPUE data provide a similar indication of trends in the stock.



Mynd 2.3.3. **Ufsi**. Heildarvísitölur (í þyngd) úr stofnmælingum í mars og október. Skyggða svæðið og lóðréttu línurnar sýna eitt staðalfrávik í mati á vísitölunum.

*Fig. 2.3.3. **Saithe**. Total biomass indices in the Icelandic groundfish surveys in March and October. Shaded area and vertical lines show one standard deviation in the estimate.*

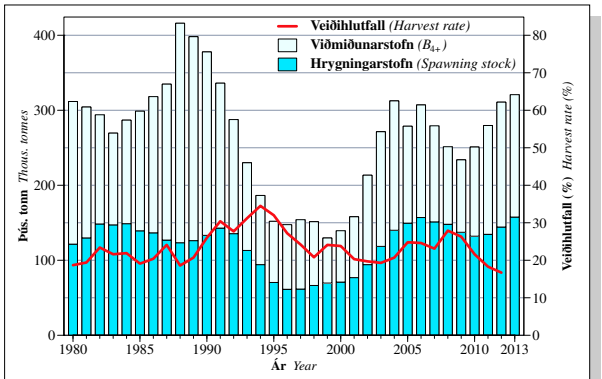
2.3.4. Stock status and prognosis

A catch-at-age model is used in the estimation of stock size based on commercial catch at age and survey catch at age from the SMB. Selectivity is fixed within three periods: 1980–1996, 1997–2003 and from 2004 to present. The beginning of the second period is defined by the decreased use of gillnets in 1997. The beginning of the third period is marked by indications within the data that selectivity has shifted toward smaller fish in recent years.

The spawning stock in early 2013 was estimated at about 158 thous. tonnes and the reference biomass (age 4 and older) at 321 thous. tonnes (figure 2.3.4 and table 3.3.7). The reference biomass is estimated above the historical mean, similar size to that in 2004–2006, but smaller than in 1988–1991. Harvest rate (landings/reference biomass) in 2012 was 17% and mean fishing mortality was 0.19.

Strong cohorts in 1998–2000 and 2002 caused growth in the reference biomass in 2003–2007, landings in that period averaged 65 thous. tonnes and the harvest rate was near 23%. As these cohorts disappeared from the stock fishing was not decreased as slowly, causing a higher harvest rate (around 27%) in 2008 and 2009 than in earlier years.

Recruitment is estimated as the number of age 3 saithe. Cohorts from 1998–2000 and 2002 are large but recruitment has been close to average since then (figure 2.3.5).

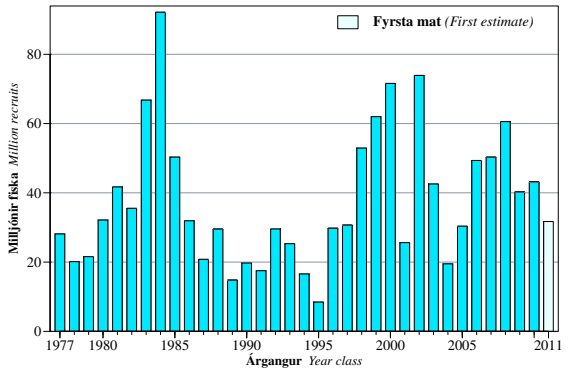


Mynd 2.3.4. **Ufsi**. Stærð hrygningarstofns og viðmiðunarstofns 1980–2013 og veiðihlutfall (afli/viðmiðunarstofn) 1980–2012.

*Fig. 2.3.4. **Saithe**. Spawning stock biomass and refernce biomass (ages 4+) in 1980–2013 and harvest rate (landings/fishable stock) in 1980–2012.*

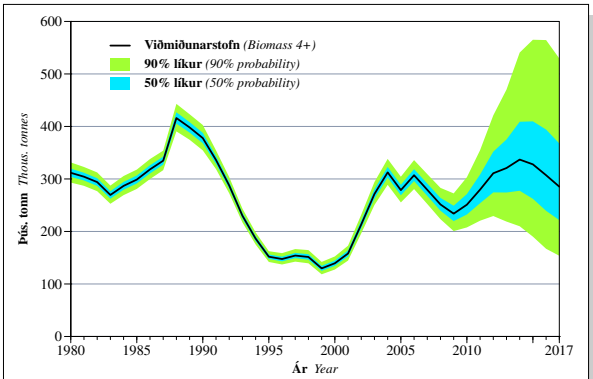
Short-term projections assume landings in 2013 of 52 thous. tonnes, which is derived from a comparison of the fishery in the current year and from 2012. Projections indicate that the reference biomass in early 2014 will be 337 thous. tonnes and the spawning stock will be 177 thous. tonnes, which is an increase between years (figure 2.3.6).

The catch-at-age model gives a considerably higher stock size than in previous years and also higher than other models evaluated for comparison. The models are in agreement about trends in the stock until about 2010, after which time they do not follow the recent increase in SMB indices in the last few years (figure 2.3.3). Overall, the difference between models reflects the considerable uncertainty about the present stock size, which depends on the accuracy of the SMB biomass index, and that the assessment of the catch-at-age model this year is more likely to be an overestimation than an underestimation.



Mynd. 2.3.5. **UFSI**. Stærð árganganna 1977–2011. Fjöldi við þriggja ára aldur (í milljónum).

Fig. 2.3.5. ***SAITHE****. Size of year classes 1977–2011 at age 3 (in millions).*



Mynd. 2.3.6. **UFSI**. Stærð viðmiðunarstofns frá árinu 1980 ásamt framreikningum til ársins 2017 miðað við að afli verði samkvæmt aflareglu.

Fig 2.3.6. ***SAITHE.*** *Reference biomass from 1980 and projection to 2017 based on harvest control rule.*

2.3.5. Advice

Table 2.3.1 shows the TAC recommended by the Marine Research Institute, national TAC and saithe landings since 1984.

In April, 2013 the Icelandic government adopted a management plan for saithe fishing that ICES deems in accordance with an international precautionary approach and the Icelandic government's policy of sustainable fishing and maximum sustainable yield. The management plan is based on a harvest control rule (HCR) that sets the TAC for the coming quota year as the average of the previous year's TAC and 20% of the current reference biomass. If the spawning stock drops below the reference point $B_{trigger}$ (65 thous. tonnes) the harvest rate is decreased. This HCR will lead to smaller fluctuations in TAC from year to year, compared to fluctuations in the stock assessment.

According to the present assessment, a 20% HCR, that takes into account the current TAC, results in a 57 thous. tonne TAC for the quota year 2013/2014. The expected effects of this TAC on the projected stock size are shown in table 2.3.2.

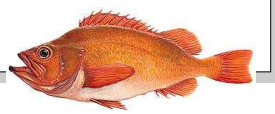
TAFLA 2.3.2.
UFSI. Áhrif á áætlaða stofnstærð (þús. tonna) miðað við veiðar samkvæmt aflareglu.

SAITHE*. Projection of stock and spawning stock biomass (thous. tonnes) based on adopted harvest control rule.*

2013					2014		2015	
Áætl. afli *Pred. landings*	Viðm. stofn B_{4+}	Hrygn. stofn *SSB*	F[1)]	Aflamark *TAC*	Viðm. stofn B_{4+}	Hrygn. stofn *SSB*	Viðm. stofn B_{4+}	Hrygn. stofn *SSB*
52	321	158	0.18	57	337	177	328	188

[1)] Meðalveiðidánartala 4–9 ára ufsa. *Mean fishing mortality of age groups 4–9.*

2.4. GOLDEN REDFISH *Sebastes norvegicus*
NORWAY REDFISH *Sebastes viviparus*



2.4.1. Golden redfish

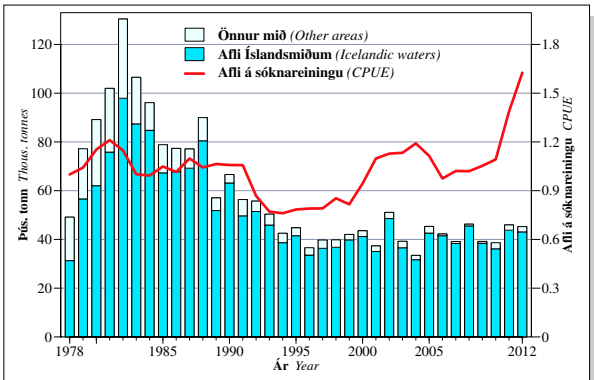
2.4.1.1. Landings, effort and age distribution in landings

Golden redfish from East Greenland, Iceland and the Faroes is considered a single stock. Over the last two decades 90–98% of all golden redfish landings have come from Icelandic waters (table 3.4.1 and figure 2.4.1). Landings reached a climax of 130 thous. tonnes in 1982, then they steadily decreased. Between 1993–2012 annual landings ranged from 33–51 thous. tonnes. Total landings in 2012 were 45 thous. tonnes, of which 95% was from Icelandic waters.

Annual landings from East Greenland increased from over 200 tonnes in 2009 to under 1 700 tonnes in 2010–2012; landings have not been so large since the early 1890s. In the Faroes redfish landings have declined sharply in recent years with annual catches of 500–600 tonnes from 2006–2012, which is the lowest since 1978.

Most golden redfish caught in Icelandic waters is caught by bottom trawl. CPUE of redfish in bottom trawls was relatively stable from 1978–2010, with a temporary decline from 1992–1999 (figure 2.4.1). In the last two years, CPUE has grown rapidly and in 2012 it was higher than it's been since 1978.

Two strong cohorts (1985 and 1990) comprised most of the catch from 1995–2008. In recent years, these cohorts have decreased in importance and in 2012 they were replaced by cohorts from 1998–2002 (figure 2.4.2).



Mynd 2.4.1. **GULLKARFI**. Afli á Íslandsmiðum, heildarafli á svæðinu Austur-Grænland/Ísland/Færeyjar og vísitala afla á togtíma árin 1978–2012.

*Fig. 2.4.1. **GOLDEN REDFISH**. Landings from Icelandic grounds, total landings from East Greenland, Icelandic and Faroese waters and CPUE index during 1978–2012.*

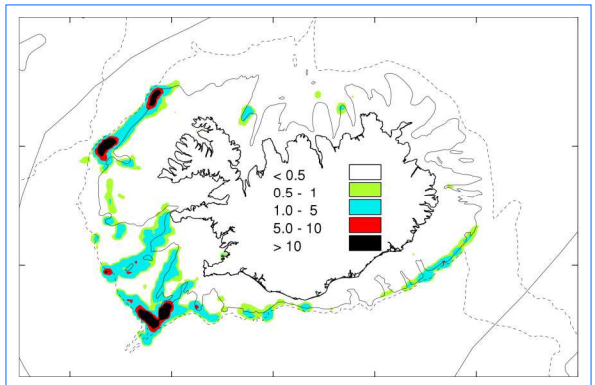
2.4.1.2. Groundfish survey

Figure 2.4.3 shows biomass indices from the spring (SMB) and fall (SMH) groundfish surveys.

Total SMB biomass dropped rapidly from 1985–1995 (figure 2.4.3) and trends in CPUE (figure 2.4.1) for that period are similar. Since 1996 the golden redfish biomass index has risen with some fluctuation and in 2013 it was similar to that in 2012 and the highest it's been since measurement began in 1985. The reference biomass index (figure 2.4.4) has also grown rapidly in recent years and is now over 20% higher than it's been since measurements began.

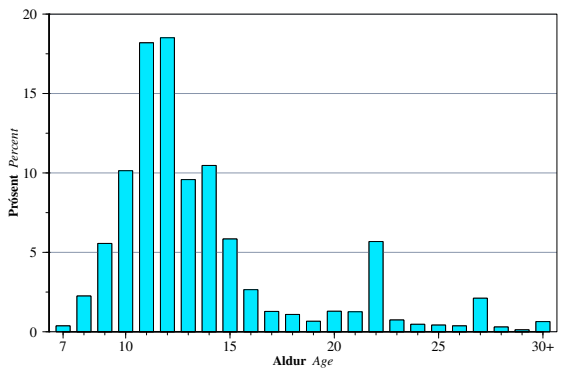
SMH indices have not been collected as long as SMB indices. Biomass indices from the SMH have steadily increased since 2000 to an historical maximum in 2012. There is more measurement error in the SMH than in the SMB due to the former having fewer sampling stations.

Age disaggregated indices from the SMH indicate that cohorts from 1997–2003 are above average. Unlike the strong cohorts from 1985 and 1990, the 1997–2003 cohorts were not strong as young fish, so it appears that their strength came about because of recruitment from somewhere outside Icelandic waters.



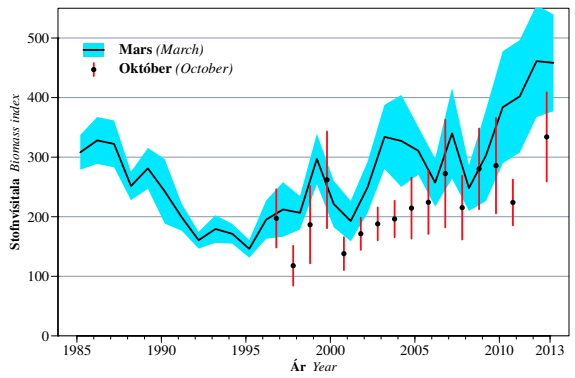
GULLKARFI. Veiðisvæði við Ísland árið 2012. Dekkstu svæðin sýna mestan afla (tonn á sjm^2).

GOLDEN REDFISH. *Fishing grounds in 2012. All gears combined. Dark areas indicate highest catch (tonnes/nmi^2).*



Mynd 2.4.2. **GULLKARFI**. Aldursdreifing afla (% af fjölda) 2012.

*Fig. 2.4.2. **GOLDEN REDFISH.** Age distribution in the 2012 catch (% by number).*



Mynd 2.4.3. **GULLKARFI.** Heildarvísitölur (í þyngd) úr stofnmælingum botnfiska í mars 1985–2013 og október 1996–2012. Skyggða svæðið og lóðréttu línurnar sýna eitt staðalfrávik í mati á vísitölum.

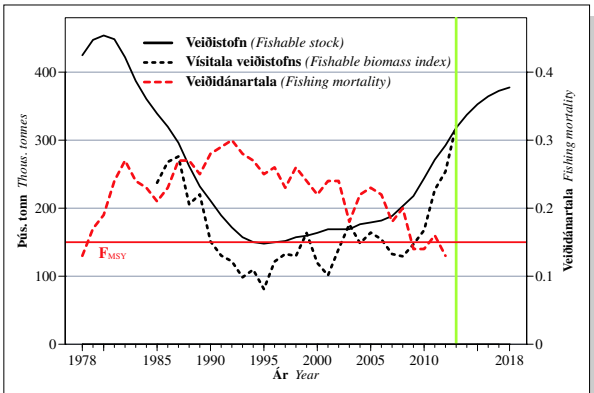
*Fig. 2.4.3. **GOLDEN REDFISH.** Total biomass indices in the Icelandic groundfish surveys in March 1985–2013 and October 1996–2012. Shaded area and vertical lines show one standard deviation in the estimate.*

2.4.1.3. Stock status

Catch-at-age data date back to 1995 and indicate how quickly cohorts disappear from landings. From 2000–2012 the abundance of the 1985 cohort decreased about 20%, annually, which is faster than the rate that would give maximum yield.

In recent years, the Gadget model (see Appendix 5.1) has been used to estimate the size of golden redfish stocks and the effects of various levels of effort in coming years. Figure 2.4.4 shows trends in fishable stock and fishing mortality of golden redfish in the fishable stock (15–25 years old). Gadget model results indicate an increase since last year. Mostly, this is due to less importance being given to recruitment data in the SMB.

The Gadget model results show that the fishing mortality that leads to maximum sustainable yield (F_{MSY}) is close to 0.15. From 1979–2008 fishing mortality ranged from 0.20–0.30, then decreased in later years and was close to 0.13 in 2012. Projections (figure 2.4.4) indicate that fishing mortality of close to 0.15 would allow the fishable stock to grow.



Mynd 2.4.4. **GULLKARFI.** Stærð veiðistofns (þús tonn) 1978–2013 og veiðidánartala (F) 1978–2012 samkvæmt Gadget líkani, ásamt framreikningum til ársins 2018 miðað við að sókn sé takmörkuð við þann fiskveiðidauða sem gefur hámarksafrakstur (F_{MSY}). Einnig er sýnd vísitala veiðistofns (35 cm og stærri) úr SMB 1985–2013.

*Fig. 2.4.4. **GOLDEN REDFISH.** Fishable stock size (thous. tonnes) 1978–2012, F 1978–2012 based on the Gadget model and the development of the fishable biomass, projecting with F_{MSY}=0.15 to 2018. Also shown is the index of the fishable biomass (35 cm and larger) in the Icelandic groundfish survey in March 1985–2013.*

At the request of the Minister of Fisheries, the MRI has been working in recent months to develop a management plan and harvest control rule (HCR) for golden redfish. This work is not completed yet but the plan is for ICES to evaluate the results in the beginning of next year.

2.4.1.4. TAC recommendations for the quota year 2013/2014

Table 2.4.1 shows Marine Research Institute recommendations (MRI) for golden redfish TAC, national TAC and total landings from Icelandic waters since the quota year 1994/1995.

The International Council for the Exploration of the Sea (ICES) Recommendation Committee does not accept recommendations based solely on the Gadget model without review of the characteristics of the model. On the other hand, the committee considers the model as a good indicator of stock trends. In light of the recent increases in stock, ICES has recommended an increase equal to 20% of the mean catch of the last three years and that golden redfish landings in the East Greenland/Iceland/Faroes region not exceed 52 thous. tonnes. The MRI also recommends this 52 thous. tonnes for the quota year 2013/2014, since this is the level of effort that would lead to maximum sustainable yield (F_{MSY}) according to the Gadget model.

TAFLA 2.4.1
GULLKARFI. Tillögur Hafrannsóknastofnunar um aflahámark, heildaraflamark samkvæmt ákvörðunum stjórnvalda og afli (þús. tonn) 1994/1995–2012/2013.
***GOLDEN REDFISH**. TAC recommended by the Marine Research Institute, national TAC and landings (thous. tonnes) 1994/1995–2012/2013.*

Ár *Year*	Tillaga gullkarfi *Rec. TAC S.norvegicus*	Aflamark *National TAC*	Afli Íslendinga *Landings (Iceland)*	Aðrar þjóðir *Landings (others)*	Heildarafli *Total landings*
1994/95	25	77[1)]	40	-	40
1995/96	25	65[1)]	37	-	37
1996/97	30	65[1)]	36	-	36
1997/98	35	65[1)]	35	-	35
1998/99	35	65[1)]	41	-	41
1999/00	35	60[1)]	37	-	37
2000/01	35	57[1)]	37	-	37
2001/02	30	65[1)]	46	-	46
2002/03	35	60[1)]	42	-	42
2003/04	35	57[1)]	30	-	30
2004/05	35	57[1)]	40	-	40
2005/06	35	57[1)]	38	-	38
2006/07	35	57[1)]	42	-	42
2007/08	35	57[1)]	35	-	35
2008/09	30	50[1)]	44	-	44
2009/10	30	50[1)]	36	-	36
2010/11	30	37.5	39	-	39
2011/12	40	40	44	-	44
2012/13	45	45			

[1)] Sameiginlega fyrir gull- og djúpkarfa. *Both* Sebastes norvegicus *and demersal* S. mentella.

2.4.2. Norway redfish

2.4.2.1. Effort and landings

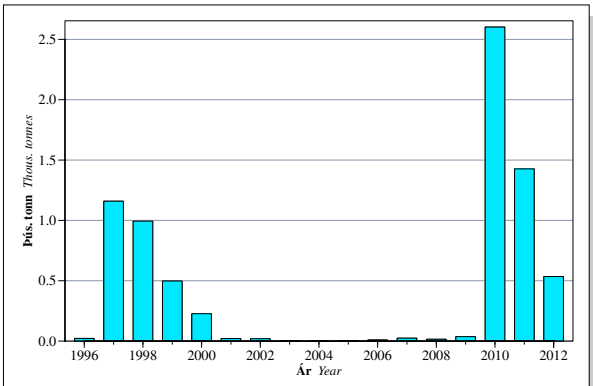
At a maximum length of about 30 cm, the Norway redfish is the smallest species of *Sebastes* in Icelandic waters. It is only found off the south and southwest of Iceland and is usually caught as bycatch in the golden redfish fishery. Little is known of their biology except that it grows slowly and can reach a very old age, like other *Sebastes* species.

In the years 1997–1999 experimental fishing targeted Norway redfish off the south coast. Landings were less than 1 200 tonnes in 1997 and declined to about 200 tonnes by 2000 (figure 2.4.5). Landings were extremely small from 2001–2009 but in 2010 targeted effort began anew and 2 600 tonnes were landed, which is the historical maximum. Landings in 2012 were 535 tonnes as compared to 1 400 tonnes in 2011 and have decreased since.

Most Norway redfish landed in 2012 was in the range of 18–30 cm and mean length was 23 cm.

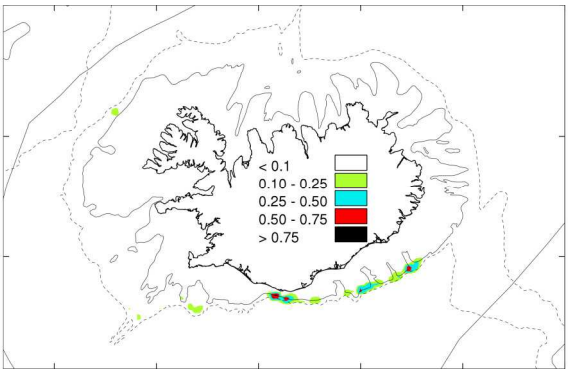
2.4.2.2. Stock measurements

Norway redfish is common in the SMB and is most commonly 10–25 cm. Most of the landings are from the southeast but distribution is patchy, which is reflected in the considerable uncertainty in indices (figure 2.4.6). Total biomass of Norway redfish was fairly stable from 1985–2000 but has steadily increased since then. The biomass index is currently about twice as high as it was at the turn of the century.



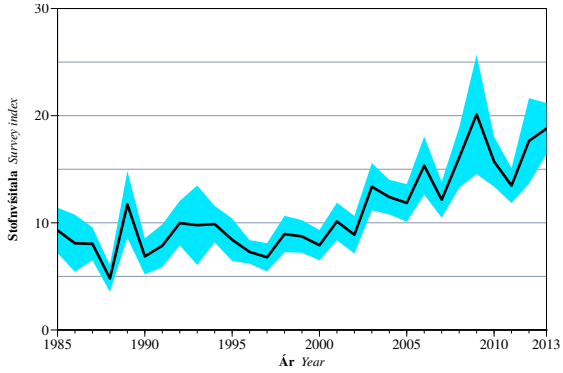
Mynd 2.4.5. **Litli karfi**. Landaður afli á íslandsmiðum árin 1996–2012.

*Fig. 2.4.5. **Sebastes viviparus**. Landings from Icelandic grounds 1996–2012.*



Litli karfi. Veiðisvæði við Ísland árið 2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

Sebastes viviparus. *Fishing grounds in 2012. Dark areas indicate highest catch (tonnes/nmi^2).*



Mynd 2.4.6. **Litli karfi**. Heildarvísitölur (í þyngd) úr stofnmælingum botnfiska í mars 1985–2013. Skyggða svæðið sýnir eitt staðalfrávik í mati á vísitölum.

*Fig. 2.4.6. **Sebastes viviparus.** Total biomass indices in the Icelandic groundfish surveys in March 1985–2013. Shaded area shows one standard deviation in the estimate.*

2.4.2.3. Stock status and TAC advise for the quota year 2013/2014

Since studies and targeting has been limited until recently, stock size and sustainable catch levels are poorly understood. Like other *Sebastes* species, the Norway redfish is slow-growing and long-lived and for these reasons effort should be limited. Furthermore, nothing is known about recruitment. From a precautionary perspective, the MRI recommends that Norway redfish landings not exceed 1 500 tonnes in the quota year 2013/2014.

2.5. DEEP SEA AND PELAGIC REDFISH *Sebastes mentella*

2.5.1. Population structure

Deep sea redfish on the shelf slopes of Greenland, Iceland and the Faroes and pelagic redfish in the Greenland Sea and surrounding waters are a single species. Effort targeting deep sea redfish has occurred since the early 1950s while fishing for pelagic redfish began in 1982. ICES divides the deep sea redfish in Icelandic waters and pelagic redfish in the Greenland Sea and surrounding waters into 3 biologically separate stocks:

1. Deep sea redfish on the Icelandic slope.
2. Pelagic redfish in the Greenland Sea, above 500 m depth.
3. Pelagic redfish in the Greenland Sea, below 500 m depth.

The Greenland shelf and slope is considered a nursery ground for all three of these stocks.

Since it is not feasible to manage stocks of redfish by depth, an area management strategy is employed. For this reason ICES proposed four management areas for deep sea redfish:

1. The Icelandic slope.
2. Southwest Greenland Sea.
3. Northeast Greenland Sea.
4. Eastern Greenland.

The management areas in the Greenland Sea are such because deep sea redfish in the north-eastern region are caught at 500 m depth whereas fishing in the south-western region is mostly carried out at less than 500 m depth.

The pelagic redfish fishery extends from international waters into the Greenlandic EEZ and the Icelandic EEZ. Management is conducted by the Northeast Atlantic Fisheries Commission (NEAFC) with recommendations from ICES.

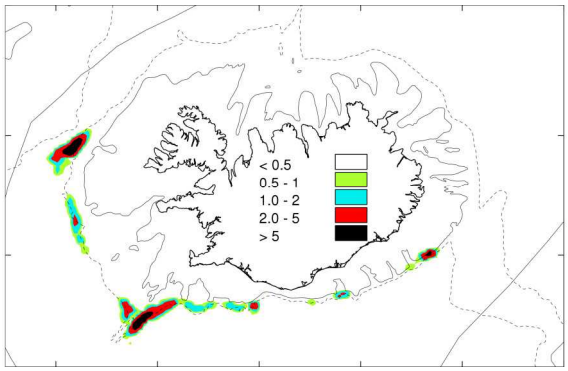
In this chapter, these three stocks are covered separately, that is, deep sea redfish of the Icelandic slope, pelagic redfish above 500 m depth (shallow stock) and pelagic redfish below 500 m depth (deep stock).

2.5.2. Deep sea redfish of the Icelandic slope

Deep sea redfish in Icelandic waters has mostly been targeted by bottom trawl. In the 1990s there was an effort to use pelagic trawls but this has ceased. The preferred fishing grounds are on the slope at depths of 450–600 m, from Víkurál west of the West Fjords, south and east to the western edge of the Faroes Ridge.

2.5.2.1. Landings and effort

Estimated deep sea redfish landings in 2012 were under 12 thous. tonnes, which is similar to the previous year. Landings have not been as low as in the last two years since 1980 (table 3.5.1 and figure 2.5.1). Landings were largest in 1994 at about 57 thous. tonnes, between 29–38 thous. tonnes from 1996–2000 and 17–28 thous. tonnes from 2001–2010.



DJÚPKARFI. Veiðisvæði við Ísland árið 2012. Dekkstu svæðin sýna mestan afla (tonn á sjm^2).

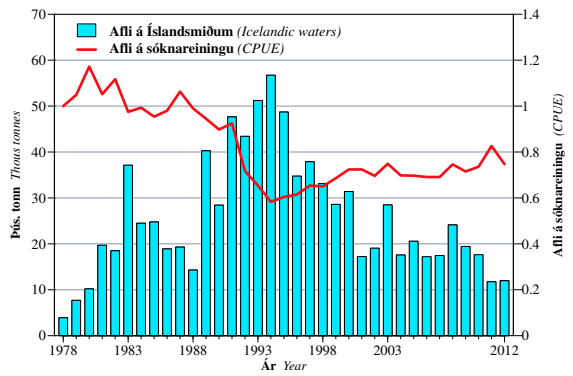
DEMERSAL DEEP SEA REDFISH. *Fishing grounds in 2012. All gears combined. Dark areas indicate highest catch (tonnes/nm^2).*

CPUE in bottom trawls decreased rapidly from 1986–1994, then increased a bit until 2000 (figure 2.5.1). From 2000–2012 CPUE changed little.

2.5.2.2. Status of the deep sea redfish stock

Biomass indices of deep sea redfish from the fall groundfish survey (SMH) 2000–2012 are shown in figure 2.5.2. The index was highest in 2001 but decreased considerably until 2003. The biomass index has been relatively steady since then, though there have been annual fluctuations. Small fish (< 30 cm) have also dropped in number during this period, indicating poor recruitment in the fishable stock.

The East Greenland shelf is considered the nursery grounds for deep sea redfish on the Icelandic slope but it is also the nursery grounds for deep sea redfish off East Greenland and the pelagic stocks. It is unknown how much of this young stock joins the

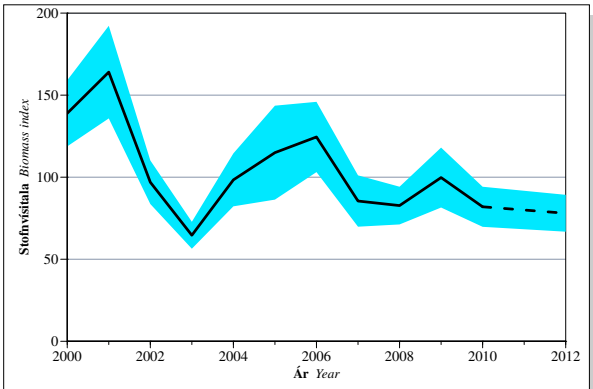


Mynd 2.5.1. **DJÚPKARFI.** Afli á Íslandsmiðum og afli á togtíma árin 1978–2012.

Fig. 2.5.1. ***DEMERSAL DEEP SEA REDFISH.*** *Landings from Icelandic grounds and CPUE during 1978–2012.*

fishable deep sea redfish stock on the Icelandic slope.

In German surveys on the East Greenland shelf in 2003–2005 abundance of small deep sea redfish (20–30 cm) was high. From 2006–2010 there was less, but 30 cm and larger was more common. Abundance of small deep sea redfish has not been lower than in 2011 and 2012 since measurements began in 1982. Furthermore, deep sea redfish 30 cm and larger have also decreased considerably. At the same time, deep sea redfish have increased in Greenlandic landings off East Greenland. It is likely that the portion of the deep sea redfish stocks found on the shelf has moved to deeper waters. This increase off East Greenland has led to renewed fishing began in 2009 after a respite of 15 years and annual landings in 2010–2012 were about 6 600 tonnes.



Mynd 2.5.2. **DJÚPKARFI.** Stofnvísitala (þyngd) samkvæmt stofnmælingu botnfiska að hausti 2000–2012. Skyggða svæðið sýnir eitt staðalfrávik í mati á vísitölu veiðistofns. Ekki var farinn leiðangur árið 2011.

*Fig. 2.5.2. **DEMERSAL DEEP SEA REDFISH.** Total survey biomass indices 2000–2012. Shaded area shows one standard deviation in the estimate of the fishable stock. The survey was not conducted in 2011.*

TAFLA 2.5.1.
DJÚPKARFI. Tillögur Hafrannsóknastofnunar um aflahámark, heildaraflamark samkvæmt ákvörðunum stjórnvalda og afli (þús. tonn) 1994/1995–2012/2013.
***DEMERSAL DEEP SEA REDFISH.** TAC recommended by the Marine Research Institute, national TAC and landings (thous. tonnes) 1994/1995–2012/2013.*

Ár *Year*	Tillaga djúpkarfi *Rec. TAC S.mentella*	Aflamark *National TAC*	Afli Íslendinga *Landings (Iceland)*	Afli annarra þjóða *Landings (others)*	Afli alls *Total landings*
1994/95[2)]	40	77[1)]	52	1	53
1995/96[2)]	35	65[1)]	41	1	42
1996/97[2)]	35	65[1)]	38	1	39
1997/98[2)]	30	65[1)]	33	1	33
1998/99[2)]	30	65[1)]	32	1	33
1999/00[2)]	25	60[1)]	25	2	27
2000/01[2)]	22	57[1)]	22	2	24
2001/02[2)]	30	65[1)]	20	1	21
2002/03[2)]	25	60[1)]	23	2	25
2003/04[2)]	22	57[1)]	20	1	21
2004/05[2)]	22	57[1)]	21	1	22
2005/06[2)]	22	57[1)]	17	1	18
2006/07[2)]	22	57[1)]	18	1	19
2007/08[2)]	22	57[1)]	17	-	17
2008/09[2)]	10	50[1)]	22	-	22
2009/10	10	50[1)]	18	-	18
2010/11	10	12.5	12	-	12
2011/12	10	12	12	-	12
2012/13	10	12			

[1)] Sameiginlega fyrir gull- og djúpkarfa. *Both Sebastes norvegicus and demersal S. mentella.*
[2)] Tillögur um aflahámark fyrir Austur-Grænland/Ísland/Færeyjar. *TAC recommendation applied to East Greenland/Iceland/Faroes.*

2.5.2.3. TAC recommendations for deep sea redfish in the quota year 2013/2014

Table 2.5.1 shows the MRI and ICES recommendations about TAC for deep sea redfish (based on the East Greenland/Iceland/Faroes region until the quota year 2010/2011, then only Icelandic waters), national TAC and total landings from Icelandic waters since the quota year 1994/1995.

Deep sea redfish is a long-lived slow-growing species that does not reach maturity until the age of 12. Such species are especially sensitive to overfishing and a long recovery period is needed after such. Also, the harvest rate that gives the maximum sustainable yield is much lower than that of short-lived species. Thus, a precautionary harvest plan must be used in managing the fishery.

Little is known about potential yield or stock size. It is impossible to assess stocks using age and length models because little is known about age distribution and time series are short. So, recommendations are based on stock size trends in the SMH. The fishable stock of deep sea redfish according to the SMH is small compared to what it was in 2000. Despite decreased effort over the last decade, the stock has not grown. MRI and ICES recommend that deep sea redfish effort continue to be limited to a TAC in 2013/2014 of not more than 10 thous. tonnes.

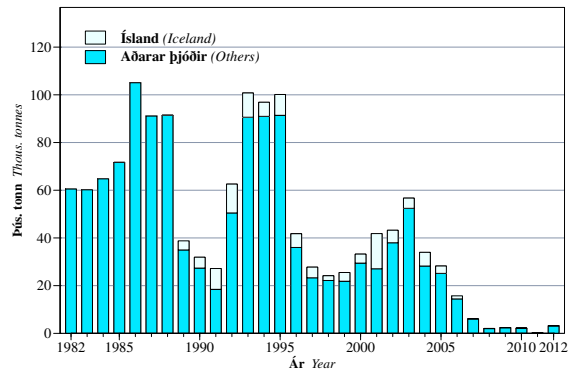
2.5.3. Pelagic redfish, shallow stock

2.5.3.1. Landings and effort

Targeting of the pelagic redfish at less than 500 m depth is conducted mostly in international waters of the Greenland Sea and in the Greenlandic EEZ. Most of the fishing occurs between July–October at depths of less than 400 m.

Figure 2.5.3 shows total landings since 1982, table 3.5.2 shows landings by region and in table 3.5.3 are landings by country. In the first five years landings were between 60–105 thous. tonnes but from 1989–1991 decreased effort led to smaller landings. Annual landings increased again to about 100 thous. tonnes in the years 1993–1995. From 1996–2005 landings were 25–55 thous. tonnes and this decrease was in part due to increased targeting of the lower stock (see chapter 2.5.4). In the last six years effort has decreased considerably and landings were over 200 tonnes in 2011, which is the lowest since fishing began. In 2012 Russian fishermen landed over 3 000 tonnes of shallow pelagic redfish from the traditional fishing grounds southeast and south of Cape Farewell, Greenland.

Icelandic landings increased from under 4 000 tonnes in 1989 to over 12 thous. tonnes in 1992 (table 3.5.3 and figure 2.5.3). From 1997–2006 Icelandic landings were about 1–15 thous. tonnes. Since then, Icelanders have not targeted the stock and annual landings have been less than 100 tonnes.



Mynd 2.5.3. **ÚTHAFSKARFI, EFRI STOFN.** Heildarafli og afli Íslendinga í Grænlandshafi árin 1982–2012.

*Fig. 2.5.3. **SHALLOW PELAGIC REDFISH.** Total catch and Icelandic catch from the Irminger Sea 1982–2012.*

2.5.3.2. Stock status

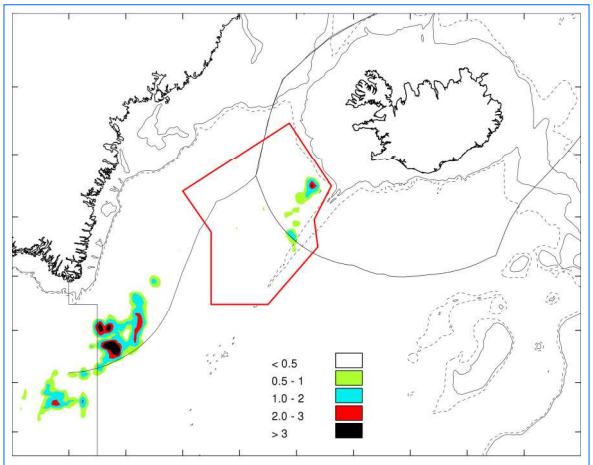
The size of shallow pelagic redfish stocks in the Greenland Sea was measured in the summer of 2011 on a collaborative research cruise involving Icelanders, Germans and Russians. Sonar measurements indicated that the stock had decreased from 2.2 million tonnes in 1994 to about 120 thous. tonnes in 2011, roughly the same as in 2009 (figure 2.5.4). Most fish were seen southwest of Cape Farewell as in previous surveys. The next such cruise will be conducted in the summer of 2013.

2.5.3.3. TAC advice for 2014

Table 2.5.2 shows ICES recommended TAC for the combined shallow and deep stocks since 1989, national TAC of Iceland since 1996, Icelandic landings and total landings since 1989. In allotment of vessel quotas since 2000 the Icelandic government has had separate TAC for pelagic redfish stocks in accordance with ICES recommendations.

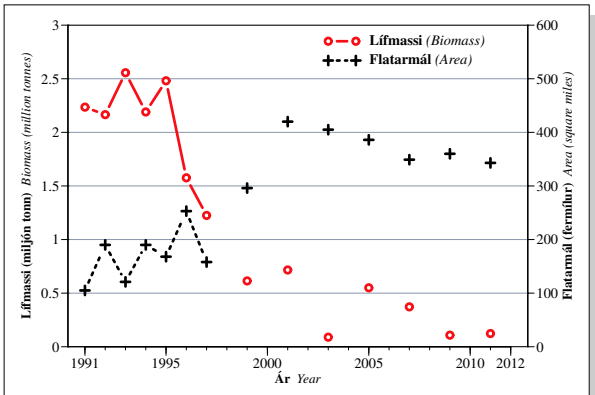
Due to declining stock size, ICES has recommended that shallow pelagic redfish not be targeted directly. The ICES Advisory Committee will provide a recommendation for 2014 in October, 2013. This will be based primarily on the multinational survey of redfish in the Greenland Sea planned by Iceland, Germany, and Russia for June–July, 2013.

NEAFC agreed in 2011 to manage fishing of these stocks until 2014. It was decided that the shallow pelagic redfish fishery would be closed due to the poor status. Russia has contested the agreement and set its own individual TAC which targets both shallow and deep stocks.



ÚTHAFSKARFI, EFRI STOFN. Veiðisvæði íslenskra skipa árin 2001–2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2). Skilgreint veiðisvæði neðri stofns úthafskarfa er afmarkað á myndinni.

SHALLOW PELAGIC REDFISH. *Fishing grounds of the Icelandic fleet in 2001–2012. Dark areas indicate highest catch (tonnes/nm^2). Also indicated is the region for the deep pelagic management unit.*



Mynd 2.5.4. **ÚTHAFSKARFI, EFRI STOFN.** Niðurstöður bergmálsmælinga og flatarmál mælingasvæðis frá árinu 1991.

*Fig. 2.5.4. **SHALLOW PELAGIC REDFISH.** Results of the acoustic estimate and size of the area surveyed since 1991.*

2.5.4. Pelagic redfish, deep stock

2.5.4.1. Landings and effort

From 1992–1994 effort in the pelagic redfish fishery increasingly targeted the deep stock, at more than 500 m depth, west of the Reykjanes Ridge on edge of the Icelandic and Greenlandic EEZs and within the Icelandic EEZ. This is the main fishing ground for deep pelagic redfish. Fishing is conducted mostly from May–July. Most of the landed fish are larger than 40 cm and therefore larger than the fish from the shallow stock. Since 1996 the majority of the Icelandic landings of pelagic redfish have been from this stock.

Table 3.5.2 figure 2.5.5 show estimated total landings since 1991 table 3.5.4 shows landings by nation. Landings were in the range of 75–140 thous. tonnes from 1995–2004, highest in 1996. Since 2005 landings have decreased and been in the range of 30–67 thous. tonnes. Landings in 2012 are estimated just under 33 thous. tonnes which is more than 14

TAFLA 2.5.2.
ÚTHAFSKARFI, EFRI OG NEÐRI STOFNAR. Tillögur Alþjóðahafrannsóknaráðsins um aflahámark, heildaraflamark íslenskra skipa samkvæmt ákvörðunum stjórnvalda og afli (þús. tonn) 1989–2013.
SHALLOW AND DEEP PELAGIC REDFISH. *TAC recommended by ICES, national TAC and landings (thous. tonnes) 1989–2013.*

			Úthafskarfi, efri stofn *Shallow pelagic* S. mentella			Úthafskarfi, neðri stofn *Deep pelagic* S. mentella		
Ár *Year*	Tillaga *Rec. TAC*	Aflamark fyrir Ísland *National TAC*	Afli Íslendinga *Landings (Iceland)*	Afli annarra þjóða *Landings (others)*	Afli alls *Total landings*	Afli Íslendinga *Landings (Iceland)*	Afli annarra þjóða *Landings (others)*	Afli alls *Total landings*
1989	90-100		3.8	35.0	38.8	0.0	0.0	0.0
1990	90-100		4.5	27.4	31.9	0.0	0.0	0.0
1991	66		8.7	18.5	27.2	0.1	0.0	0.1
1992	-		12.1	50.5	62.6	3.4	0.0	3.4
1993	50		10.2	90.6	100.8	12.7	2.3	15.1
1994	100		5.9	91.0	96.9	47.4	4.4	51.8
1995	100		8.7	91.4	100.1	25.9	49.8	75.7
1996	-	45.0	5.8	36.0	41.8	57.1	81.4	138.6
1997	-	45.0	4.4	23.3	27.7	36.8	58.2	95.1
1998	-	45.0	2.0	22.2	24.2	46.5	46.3	92.8
1999	-	45.0	3.7	21.8	25.5	40.3	43.9	84.2
2000	85	45.0 (13.0[2])	3.8	29.5	33.2	41.5	51.6	93.1
2001	<85	45.0 (13.0[2])	14.7	27.1	41.8	27.7	59.3	87.0
2002	<85	45.0 (10.0[2])	5.2	38.0	43.2	39.3	63.9	103.2
2003	119	55.0 (10.0[2])	4.3	52.4	56.7	44.6	59.7	104.3
2004	120	55.0 (10.0[2])	5.7	28.2	33.9	31.1	60.9	92.0
2005	41	34.5 (6.3[2])	3.1	25.1	28.2	12.9	32.6	45.5
2006	41	28.6 (5.2[2])	1.3	14.4	15.7	20.9	46.3	67.3
2007	0	21.1 (3.8[2])	0.1	6.1	6.1	18.1	40.4	58.5
2008	20	21.1 (7.4[2])	0.1	1.9	2.0	6.7	23.3	30.0
2009	20	21.1 (6.3[2])	0.0	2.4	2.4	15.1	38.9	54.0
2010	20 (0[1])	21.1 (6.3[2])	0.0	2.2	2.4	14.8	44.5	59.3
2011	20 (0[1])	11.8 (0[2])	0.1	0.2	0.3	12.0	35.3	47.3
2012	20 (0[1])	9.8 (0[2])	0.0	3.2	3.2	5.9	26.9	32.8
2013	20 (0[1])	7.8 (0[2])						

[1] Tillaga Alþjóðahafrannsóknaráðsins fyrir efri stofn úthafskarfa. *ICES recommendation for shallow pelagic stock.*
[2] Úthlutað aflamark fyrir Suðursvæði (efri stofn). *TAC for Southern fishing area (shallow pelagic stock).*

thous. tonnes less than landings in 2011.

Icelandic landings increased from 3 000 tonnes in 1992 to 57 thous. tonnes in 1996 (table 3.5.4 and figure 2.5.4). From 1997–2004 Icelandic landings were from 28–47 thous. tonnes. As with other nations, Icelandic landings have decreased dramatically in recent years. Landings in 2012 were about 6 000 tonnes, which is about 6 000 tonnes less than the previous year and the smallest landings since 1992.

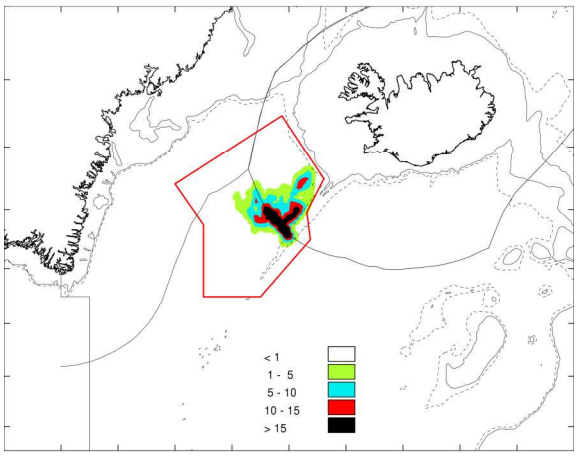
2.5.4.2. Stock status

Stock size of the deep pelagic redfish was measured in the summer of 2011 during a collaborative cruise involving researchers from Iceland, Russia and Germany. This was the seventh such multinational cruise since 1999. In order to estimate stock size, the so-called trawl method has been used because the sonar method does not work. Surveys in 2005 and 2007 are not comparable with other surveys because of changes in cruise operations that could lead to a portion of the shallow stock being added to the biomass data. Most measured redfish was inside the Icelandic EEZ and along the boundary of the EEZ southwest of Reykjanes. In 2011 there were 475 thous. tonnes of redfish, which is similar to the amount in 2009. The largest measurement, one million tonnes, occurred in 2001.

2.5.4.3. Advice

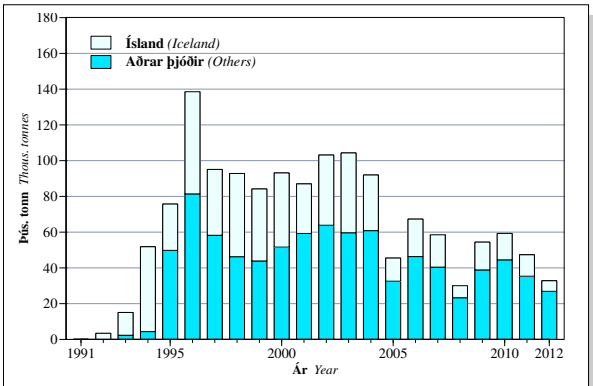
Table 2.5.2 shows ICES TAC recommendations for both stocks of pelagic redfish since 1989, national TAC from Iceland since 1996, Icelandic landings and total landings since 1989.

NEAFC agreed in 2011 to decrease effort and that in 2014 landings would be in accordance with



ÚTHAFSKARFI, NEÐRI STOFN. Veiðisvæði íslenskra skipa árin 2004–2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2). Skilgreint veiðisvæði neðri stofns úthafskarfa er afmarkað á myndinni.

DEEP PELAGIC REDFISH. *Fishing grounds of the Icelandic fleet in 2004–2012. Dark areas indicate highest catch (tonnes/nmi^2). The polygon indicates the region for the deep pelagic management unit.*



Mynd 2.5.5. **ÚTHAFSKARFI, NEÐRI STOFN**. Heildarafli og afli Íslendinga í Grænlandshafi árin 1991–2012.

*Fig. 2.5.5. **DEEP PELAGIC REDFISH**. Total catch and Icelandic catch from the Irminger Sea 1991–2012.*

ICES recommendations. TAC in 2013 is 26 thous. tonnes. As part of the agreement, total landings will be split by nation, though in recent years countries have set unilateral TAC. Iceland is allotted 31% of total landings and the Icelandic TAC is about 8 thous. tonnes in 2013.

Russia has contested the agreement and has adopted a TAC in 2013 of 27 300 tonnes, which is a decrease of about 2 000 tonnes from their landings in 2012. This unilateral TAC does not distinguish between shallow and deep stocks. For this reason, total landings of deep pelagic redfish in 2013 are about 48 thous. tonnes.

For the last four years ICES has recommended that total landings from the deep pelagic redfish stock be no more than 20 thous. tonnes. ICES asserts that due to the decline in stock size in recent years effort must be decreased because it has been far above the potential yield of the stock.

Little information exists about the age distribution of the deep pelagic redfish stock and available time series are short. So, stock assessments using age and length based models are not possible. Recommendations are therefore based on the results of the multinational redfish cruises that have been conducted yearly since 1999. The Advisory Committee of ICES will recommend a TAC in 2014 for deep pelagic redfish in October, 2013. This will be based primarily on the multinational survey of redfish in the Greenland Sea planned by Iceland, Germany, and Russia for June–July, 2013.

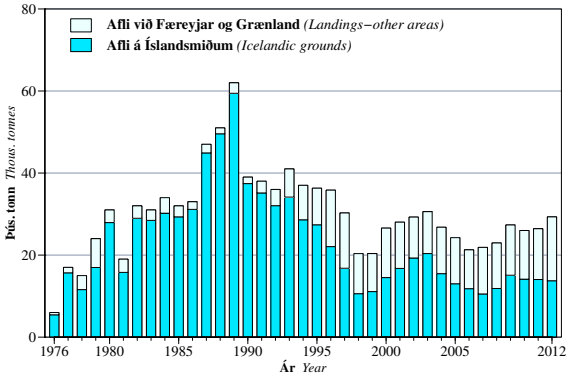
2.6. GREENLAND HALIBUT *Reinhardtius hippoglossoides*

2.6.1. Stock structure

Greenland halibut from the East Greenland/ Iceland/Faeroe Islands region (GIF) is considered a single stock. Appropriately, stock assessments and advice from ICES and MRI considered the stock in this large region a single whole.

2.6.2. Landings and effort

Total landings of Greenland halibut in the GIF region were over 29 thous. tonnes in 2012 (figure 2.6.1 and table 3.6.1), just under 14 thous. tonnes of this was from icelandic waters. The proportion of landings that came from Icelandic waters was near and above 90% in the years 1982–1992, but decreased rapidly thereafter and has remained at about half of the total in recent years. TAC for



Mynd 2.6.1. **GRÁLÚÐA**. Afli á Íslandsmiðum og heildarafli (þús. tonna) við Ísland, Austur-Grænland og Færeyjar 1976–2012.

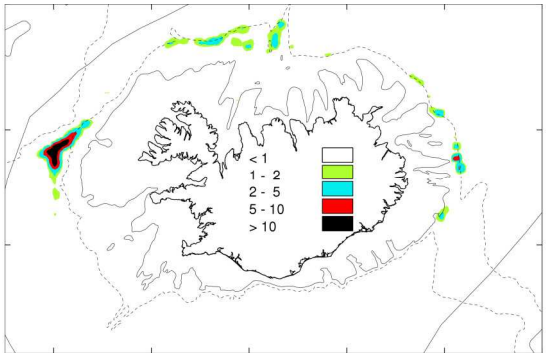
*Fig. 2.6.1. **GREENLAND HALIBUT**. Landings from Icelandic grounds and total landings (thous. tonnes) from East Greenland, Icelandic and Faroese waters 1976–2012.*

Icelandic vessels for the quota year 2011/2012 was 13 thous. tonnes and landings were just over 13 thous. tonnes.

CPUE of the Icelandic trawler fleet was rather even from 1985–1989 but decreased each year following until hitting a minimum in the years 1995–1997 (figure 2.6.2). CPUE in these three years was almost 30% of of the average for the years 1985–1989. CPUE doubled in the period 1998–2001, decreased by half in 2004 then increased again until 2011. No change occurred in CPUE between 2011 and 2012. According to entries from the fishing logs of foreign flag vessels off East greenland, CPUE there increased between 2011 and 2012 but had been rather stable for the previous three years.

2.6.3. Stock status

The reference biomass index (fish which are more than 40 cm) from the fall groundfish survey (SMH) increased somewhat in the period 1996–2001 but declined quickly in consequent years and was at



GRÁLÚÐA. Veiðisvæði við Ísland árið 2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

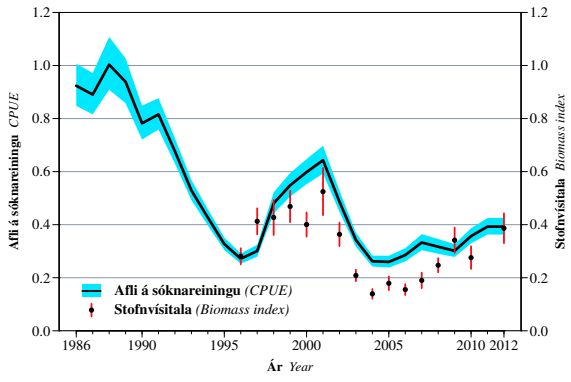
GREENLAND HALIBUT. *Fishing grounds in 2012. All gears combined. Dark areas indicate highest catch (tonnes/nmi^2).*

a minimum from 2004–2007 (figure 2.6.2). The SMH was cancelled in 2011 but the biomass index in 2012 was the highest since 2001.

Landing trends in the trawling fleet have been in agreement with estimates from survey data. The same can be said of surveys from East greenland, which date back to 1998. These surveys, in addition to trend data from the trawler fleet since 1986, indicate that the stock is still at a minimum. Stock estimates with biomas-dynamic models based on total landings, biomass indeces above and CPUE from the Icelandic trawler fleet indicate more clearly that fishing mortality is high and that the stock is near an historical minimum, but still above defined danger limits.

2.6.4. Recommended TAC for the quota year 2013/2014

Table 2.6.1 shows TAC recommendations, national TAC and Greenland halibut landings since



Mynd 2.6.2. **GRÁLÚÐA**. Afli á sóknareiningu hjá íslenska togaraflotanum 1985–2012 og stofnvísitala (>40cm) úr stofnmælingu botnfiska að hausti 1996–2012.

*Fig. 2.6.2. **GREENLAND HALIBUT**. CPUE of the Icelandic fishing fleet 1985–2012 and biomass index (>40cm) from the Icelandic autumn survey 1996–2012.*

1984. the icelandic government set a 14 700 tonn TAC within Icelandic waters for the current quota year and Greenland set a 13 thous. tonn TAC for 2013. Fishing in the Faeroe Islands is managed by fishing days. Last year ICES recommended that TAC in the GIF region should not go over 20 thous. tonnes, based on the results of a biomas-dynamic model.

In September,2012 Iceland and Greenland entered into an agreement for shared usage of the stock. This agreement provides that TAC in 2013 will be 26 thous. tonnes but would decrease by 15% in 2014 to total just over 22 thous. tonnes. Also agreed was that Iceland woud have rights to 60% of total landings and Greenlanders would have 40%. Furthermore, the nations agreed to develop a harvest control rule (HCR) for Greenland halibut that would be adopted in 2015. No such agreement exists with the Faeroe Islands and they are not included in the deal, but annual landings of Greenland halibut in the Faeroes in recent years has been most often less than 1 000 tonnes.

ICES and MRI advise a total maximum landings for the entire GIF region for quota year 2013/2014 of 20 thous. tonnes. This is the same advise as was given for the current quota year and it assumes a fishing mortality that will provide maximum sustainable yield, based on the biomas-dynamic model (F_{MSY}).

TAFLA 2.6.1.
GRÁLÚÐA. Tillögur Hafrannsóknastofnunar um aflahámark, heildaraflamark samkvæmt ákvörðunum íslenskra stjórnvalda og afli (þús. tonn) 1984–2012/2013.

GREENLAND HALIBUT. *TAC recommended by the Marine Research Institute, national TAC in Icelandic waters and landings (thous. tonnes) 1984–2012/2013.*

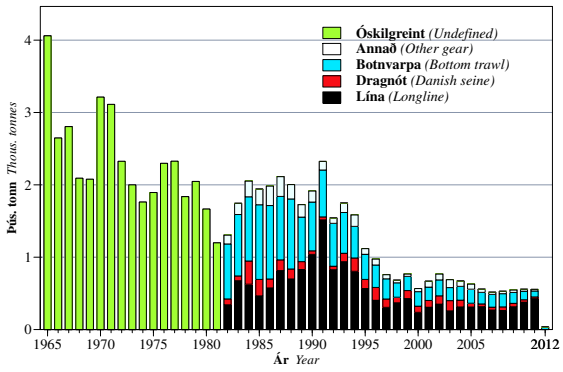
Ár	Tillaga	Aflamark fyrir Ísland[3]	Afli á Íslandsmiðum[3]	Afli á öðrum miðum[1]	Afli alls
Year	*Rec. TAC*	*National TAC in Icelandic waters*[3]	*Landings from Icelandic waters*[3]	*Landings in other areas*[1]	*Total landings*
1984[1]	25	30	30.2	3.9	34.1
1985[1]	25	30	29.2	2.9	32.2
1986[1]	25	30	31.3	2.0	33.1
1987[1]	25	30	44.9	1.9	46.8
1988[1]	30	30	49.6	1.7	51.3
1989[1]	30	30	59.4	2.1	61.1
1990[1]	30	30	37.4	2.0	39.4
1991[2]	27	33	31.2	2.5	33.7
1991/92[3]	25	25	30.3	3.5	33.8
1992/93[3]	30	30	34.5	6.7	41.3
1993/94[3]	25	30	29.5	8.4	37.6
1994/95[3]	30[4]	30	26.4	8.9	35.3
1995/96[3]	20[4]	20	22.3	13.8	36.1
1996/97[3]	15[4]	15	17.7	13.3	31.0
1997/98[3]	10[4]	10	11.0	9.8	20.8
1998/99[3]	10[4]	10	11.2	9.3	20.5
1999/00[3]	10[4]	10	11.5	12.0	23.5
2000/01[3]	20[4]	20	20.0	11.3	31.3
2001/02[3]	20[4]	20	19.2	9.9	29.1
2002/03[3]	23[4]	23	20.3	10.2	30.5
2003/04[3]	20[4]	23	15.8	11.3	27.1
2004/05[3]	15[4]	15	13.0	11.0	24.0
2005/06[3]	15[4]	15	12.7	9.5	22.2
2006/07[3]	15[4]	15	9.6	11.3	20.9
2007/08[3]	15[4]	15	9.7	11.1	20.8
2008/09[3]	5[4]	15	15.6	11.6	27.2
2009/10[3]	5[4]	12	14.1	11.6	25.7
2010/11[3]	5[4]	13	12.2	13.1	25.3
2011/12[3]	12[4]	13	13.2	15.6	28.8
2012/13[3]	20[4]	14.7			

[1] Almanaksárið. *Calendar year.*
[2] Tímabilið janúar–ágúst 1991. *January–August 1991.*
[3] Fiskveiðiárið september–ágúst. *Quota year September–August.*
[4] Tillögur um aflahámark fyrir Austur-Grænland/Ísland/Færeyjar. *TAC recommendation applied to East Greenland/Iceland /Faeroes.*

2.7. HALIBUT *Hippoglossus hippoglossus*

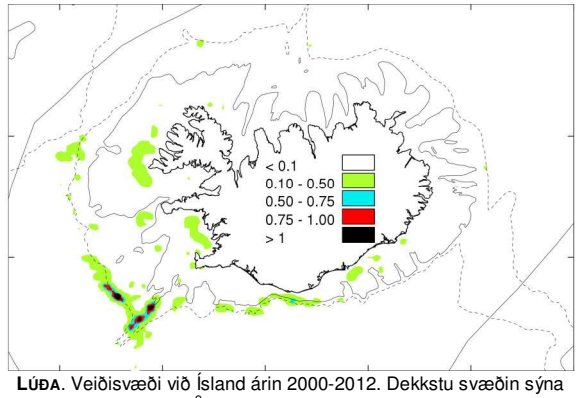
2.7.1. Landings and effort

On January 1, 2012 the halibut fishery in Icelandic waters was closed and fishermen were ordered to release all halibut bycatch that could survive being released. Landings of halibut decreased dramatically. Recorded landings in 2012 were about 35 tonnes, of which 30 tonnes were caught in bottom trawls. Lobster trawlers landed 2,6 tonnes and longlines about one ton. From 1996–2011 halibut landings in Icelandic waters were less than 1 000 tonnes.



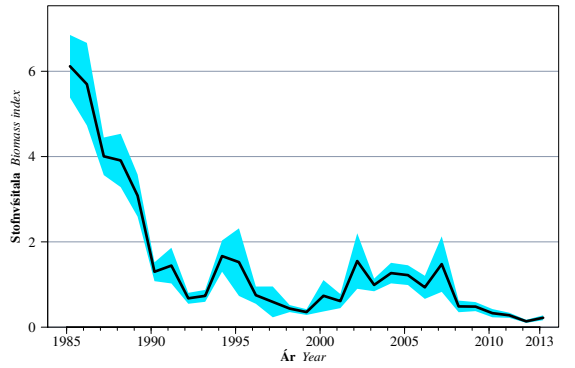
Mynd 2.7.1. **LÚÐA**. Heildarafli (þús. tonn) árin 1965–2012 skipt eftir veiðarfærum.

*Fig. 2.7.1. **HALIBUT**. Total landings during the period 1965–2012 (thous. tonnes) divided by gear.*



LÚÐA. Veiðisvæði við Ísland árin 2000-2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

HALIBUT. *Fishing grounds in 2000-2012. All gears combined. Dark areas indicate highest catch (tonnes/nm^2).*



Mynd 2.7.2. **LÚÐA**. Vísitala veiðistofns (stofnþyngd) í stofnmælingu í mars 1985–2013. Skyggða svæðið sýnir eitt staðalfrávik í mati á vísitölunni.

*Fig. 2.7.2. **HALIBUT**. Biomass index in the Icelandic groundfish survey in spring 1985–2013. The shaded area shows one standard deviation in the biomass estimate.*

Total halibut landings are shown on figure 2.7.1 and in table 3.7.1. Data on halibut landings is available dating back to 1905 and they show that landings have never been as small as in the aforementioned period, with the exception of the duration of WWII.

Annual bottom trawl landings decreased steadily from about 1 000 tonnes in 1985 and 1986 to about 200 tonnes in 1998 and were thereafter between 110–220 tonnes until 2011 when landings totalled only about 80 tonnes. Longline landings were about 1 100 tonnes in 1991 but decreased quickly to about 200 tonnes in 1997. Landings remained at about 200 tonnes until 2008 when they increased because of direct targeting with halibut lines (halibut-directed longlines with larger hooks) which landed about 400 tonnes in 2011. In the last years before the closure, about 70–90% of total Icelandic landings were caught with these two gears.

2.7.2. Stock status

Halibut biomass indices based on SMB data in 1985–2013 show similar trends to CPUE from Danish seine fishing. The biomass index decreased rapidly early in this period and has been at a minimum since 1992 (figure 2.7.2). These results confirm that halibut stocks declined in the period 1985–1992 and that they are at an historical low.

Halibut caught in the SMB are predominated by age 3-5 immature fish. These year classes have been at a minimum for two decades which certifies that the stock has experienced recruitment failure. This condition is such that the stock will remain at a minimum for years to come.

2.7.3. Advice for quota year 2013/2014

Due to the poor condition of the halibut stock, the Fisheries Minister created a work group tasked with finding ways to protect the stock. This work group returned the recommendation in January, 2011 that the most productive solution was a closure of the fishery. In continuation of these results, the MRI reviewed all data regarding other ways to conserve the halibut stock. Furthermore, seasoned captains

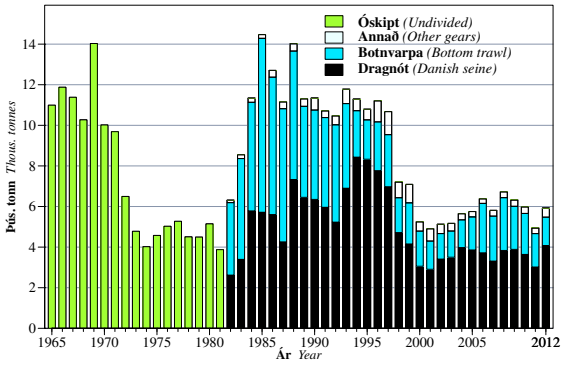
were consulted to create a discourse on various ways to help the stock recover. The conclusion was that the best thing to add to the closure was that any live halibut caught as bycatch would be released, considering that they are hardy fish thought to be able to survive some handling. Following the recommendation from MRI, the Ministry of Fisheries and Agriculture adopted the previously described regulations.

MRI recommends a continued effort to find other solutions to aid the recovery of halibut stock and that the current regulation remain in place until such time as significant recovery of that stock is observed.

2.8. PLAICE *Pleuronectes platessa*

2.8.1. Landings

Plaice landings in 2012 were about 5 900 tonnes (figure 2.8.1 and table 3.8.1). Plaice in Icelandic waters since 1950 are shown in table 3.8.1. At about 14 500 tonnes, landings in 1985 were largest, they ranged between 10–14 thous. tonnes from 1986–1997 and between 4 900–7 100 tonnes since then.



Mynd 2.8.1. **SKARKOLI**. Heildarafli (þús. tonna) árin 1965–2012 skipt eftir veiðarfærum.

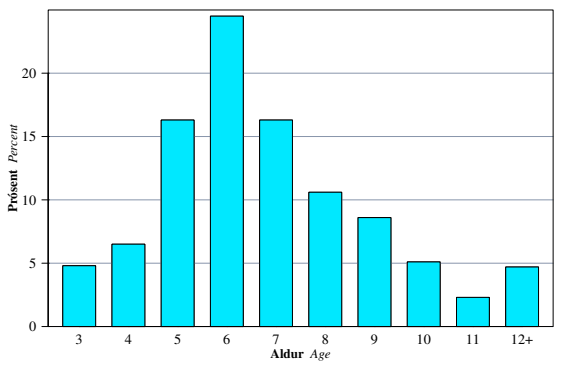
*Fig. 2.8.1. **PLAICE**. Total landings during the period 1965–2012 (thous. tonnes) divided by gear.*

The majority of plaice landings in recent years came from the Danish seine fleet. In 1992 bottom trawlers caught about half of all landings, but that proportion dropped below 20% in 1995. Since 1996 bottom trawl catches of plaice have increased to 24–38%. Landings in other gears, including gillnets, were about 7% of the total landings last year.

2.8.2. Age distribution, biomass index and CPUE

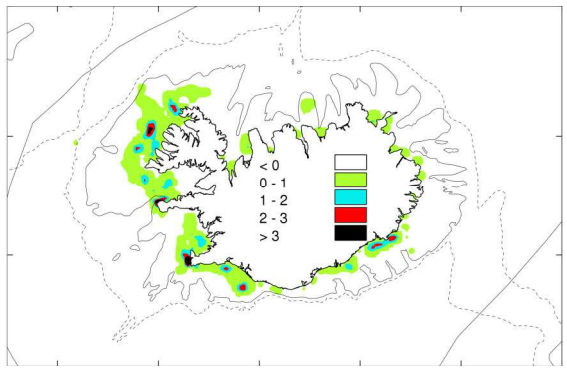
Age distribution of 2012 landings (figure 2.8.2) shows that most landings were age 6 plaice and that this cohort was nearly one quarter of all landings. Also, at 16%, the proportions of 5 and 7 year old plaice were rather high.

SMB-based biomass indices from 1985–2013



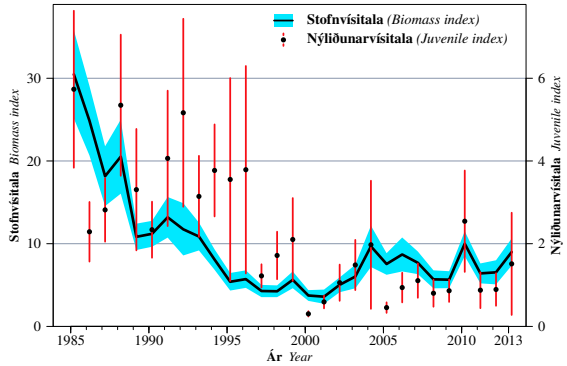
Mynd 2.8.2. **SKARKOLI**. Hlutfallsleg aldursdreifing (% af fjölda) í löndunum afla 2012.

*Fig. 2.8.2. **PLAICE**. Percentage age distribution (% by numbers) of the 2012 landings.*



SKARKOLI. Veiðisvæði við Ísland árið 2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

***PLAICE**. Fishing grounds in 2012. All gears combined. Dark areas indicate highest catch (tonnes/nmi^2).*



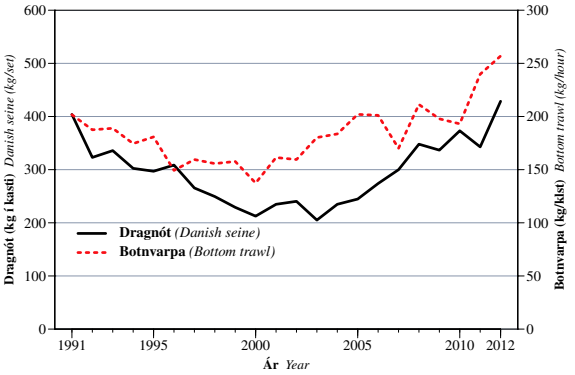
Mynd 2.8.3. **SKARKOLI**. Vísitölur veiðistofns (stofnþyngd) og ungfisks (fjöldi fiska) í stofnmælingu botnfiska í mars árin 1985–2013.

*Fig. 2.8.3. **PLAICE**. Indices for fishable stock (biomass) and juveniles (number of fish) in the groundfish survey in spring 1985–2013.*

indicate that the fishable plaice stock decreased considerably from 1985–2001 (figure 2.8.3). Indices increased somewhat over the next 5 years and have been, since 2005, about 30–50% of the biomass average for the years 1985–1989.

CPUE in Danish seine, in the main fishing grounds from Stokksnes west and north to Horn, is calculated as mean bycatch per cast in which plaice was more than 10% of each cast. According to Danish seine fishing logs, plaice landings decreased in the region mentioned above from 1991–2000, from about 400 kg per cast to about 210 kg, but have increased in recent years and were about 430 kg last year (figure 2.8.4).

Bottom trawl CPUE (kg/hr), in which plaice was 25% of the catch, decreased by about one third from 1991 until 2000, from 200 to 140 kg/hr. (figure



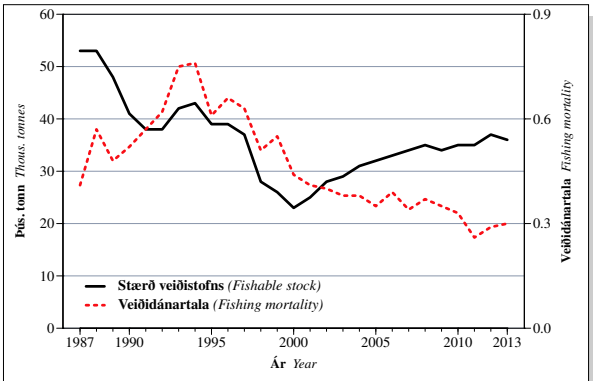
Mynd 2.8.4. **Skarkoli**. Afli á sóknareiningu (kg í kasti) hjá dragnótabátum og í botnvörpu (kg/klst) 1991–2012.

*Fig. 2.8.4. **Plaice**. CPUE from seiners (kg/set) and bottom trawl vessels (kg/hour) in 1991–2012.*

2.8.4). Since then, landings have been growing.

2.8.3. Stock status

Stock development calculations, based on age-catch analysis, indicate that the stock decreased by more than half from 1993–2000 and reached an historical low in 2000 as a result of high harvest rate and poor recruitment. For the last 10 years, recruitment (number of age 3 fish) has been low but steady. Fishing mortality has been decreased by nearly half during this period and is not at an historical low. Parallel to this decrease in fishing pressure, the fishable stock biomass has been increasing since 2000 and is now estimated to be about 35 thous. tonnes. Measurements of the size of cohorts entering he fishable stock at a given time are not available so there is uncertainty about the size of younger cohorts..



Mynd 2.8.5. **Skarkoli**. Þróun stofnstærðar veiðistofns (fjögurra ára og eldri) 1987–2012 og veiðidánartala 1987–2012 samkvæmt aldurs-aflagreiningu.

*Fig. 2.8.5. **Plaice**. Fishable stock (4 +) 1987–2012 and fishing mortality 1987–2012, based on CAGEAN model.*

Tafla 2.8.1.
Skarkoli. Tillögur Hafrannsóknastofnunar um aflahámark, heildaraflamark samkvæmt ákvörðunum stjórnvalda og afli (tonn) fiskveiðiárin 1991/1992–2012/2013.

***Plaice**. TAC recommended by the Marine Research Institute, national TAC and landings (tonnes) in the quota years 1991/1992–2012/2013.*

Fiskveiðiár *Quota year*	Tillaga *Recommended TAC*	Aflamark *National TAC*	Afli *Landings*
1991/92	10 000	11 000	10 200
1992/93	10 000	13 000	12 400
1993/94	10 000	13 000	12 300
1994/95	10 000	13 000	11 100
1995/96	10 000	13 000	11 000
1996/97	10 000	12 000	10 300
1997/98	9 000	9 000	8 100
1998/99	7 000	7 000	7 500
1999/00	4 000	4 000	4 900
2000/01	4 000	4 000	4 900
2001/02	4 000	5 000	4 400
2002/03	4 000	5 000	5 400
2003/04	4 000	4 500	5 800
2004/05	4 000	5 000	6 200
2005/06	4 000	5 000	5 700
2006/07	5 000	6 000	6 100
2007/08	5 000	6 500	6 600
2008/09	5 000	6 500	6 400
2009/10	5 000	6 500	6 400
2010/11	6 500	6 500	4 800
2011/12	6 500	6 500	5 800
2012/13	6 500	6 500	

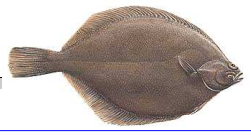
2.8.4. Projections and TAC recommendations for quota year 2013/2014

Table 2.8.1 shows MRI TAC recommendations, national TAC and total landings since 1991.

MRI recommends that total plaice landings in the quota year 2013/2014 be limited to 6 500 tonnes. Considering the assumption that recruitment will be similar to that in recent years, this limitation will lower fishing mortality to that which provides maximum sustainable yield.

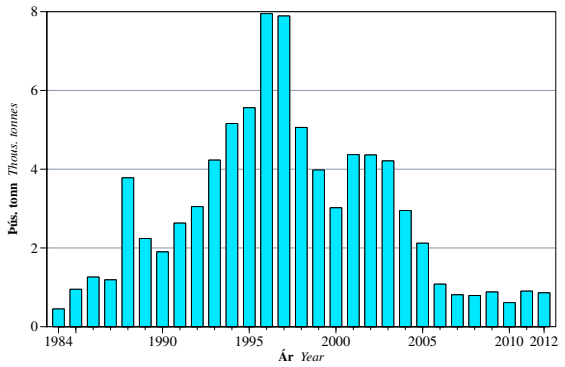
Furthermore, it is recommended that spawning stocks continue to be protected by area closures during spawning season, as has been done yearly since 2002.

2.9. DAB *Limanda limanda*



2.9.1. Landings and effort

CPUE in 2012 was 860 tonnes. Until 1984 dab was caught as bycatch in fisheries of other fish and was most often discarded. Starting in 1984 dab landings rose steadily until reaching almost 8 000 tonnes in 1996–1997 (figure 2.9.1 and table 3.9.1). In the quota year 2011/2012 landings were about 890 tonnes, of which 700 tonnes were caught in the management area between Snæfellsnes and south to Stokksnes.

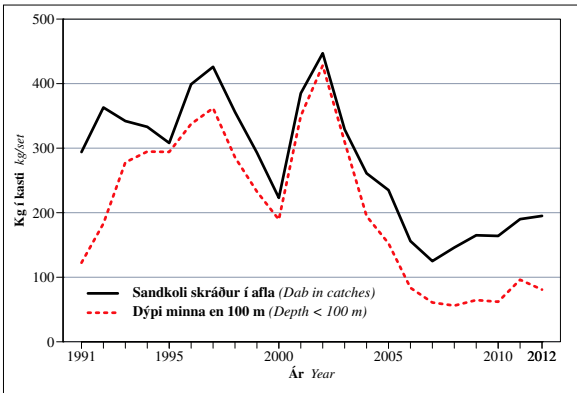


Mynd 2.9.1. SANDKOLI. Heildarafli (þús. tonna) árin 1984–2012.

Fig. 2.9.1. DAB. Total landings in 1984–2012 (thous. tonnes).

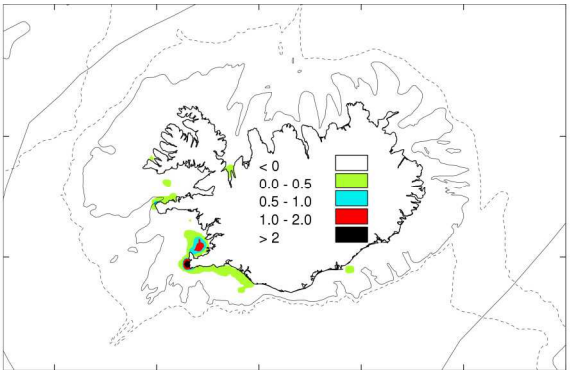
The dab fishery is mostly located in Faxaflói, around Reykjanes and along the south coast to Stokksnes. Over 95% landings are caught in Danish seine.

The proportion of dab as bycatch in Danish seine in the area from Faxaflói to Stokksnes decreased by half between 1997–2000 (figure 2.9.2) but increased again in 2001–2002. Since 2002 landings have decreased considerably but remained steady in the last few years.



Mynd 2.9.2. SANDKOLI. Afli á sóknareiningu (kg í kasti) hjá dragnótabátum úr öllum köstum þar sem sandkolaafli er skráður og á dýpi minna en 100 m.

Fig. 2.9.2. DAB. CPUE (kg per set) from seiners, from sets where dab is recorded in the catch and depth is less than 100 m.



SANDKOLI. Veiðisvæði við Ísland árið 2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

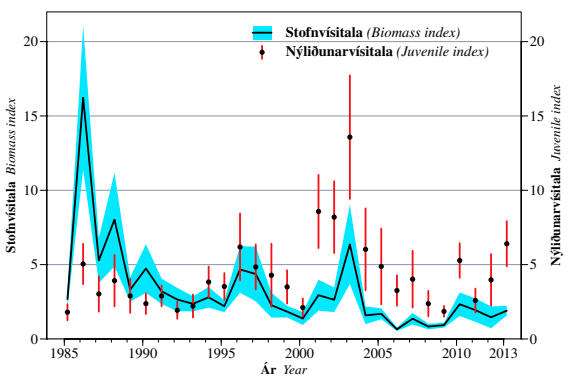
DAB. Fishing grounds in 2012. All gears combined. Dark areas indicate highest catch (tonnes/nmi^2).

2.9.2. Stock status

The SMB-based biomass indices (figure 2.9.3) have been very low in recent years but because of wide confidence intervals and high variance, this is not considered a satisfactory indicator of stock trends.

Age disaggregated data from dab landings are available from 1993–2012. Estimates based on these data show that cohorts quickly leave the fishable stock and that fishing mortality has been very high in recent years. The fishable stock in 2012 was mostly dab age five and six, that is cohorts from 2006 and 2007. Landings data suggest that both those cohorts are very small.

Estimates of fishable stock at the beginning of 2013 is not precise due to limited data about the size of cohorts from 2008 and 2009 that are joining the fishable stock. Preliminary indications from landings suggest that they are not large.



Mynd 2.9.3. SANDKOLI. Vísitölur veiðistofns (stofnþyngd) og nýliðun (fjöldi fiska) í stofnmælingu botnfiska í mars 1985–2013.

Fig. 2.9.3. DAB. Indices of fishable stock (biomass) and recruitment (number of fish) in annual groundfish survey in March 1985–2013.

2.9.3. Projections and TAC recommendations for the quota year 2013/2014

Table 2.9.1 shows MRI TAC recommendations, national TAC and dab landing data since 1995/1996.

In the quota years from 1997/1998 until 2009/2010 landings were usually smaller than recommended and much smaller than allocated TAC. It is likely that total landings in the current quota year will be similar to those of the previous year at about 700 tonnes in the management area.

In light of the poor status of dab stock MRI recommends that landings in the quota year 2013/2014 be restricted to those fish caught as bycatch. Considering current stock status, this could be about 500 tonnes in the quota year 2013/2014 in the management area from Snæfellsnes south and east to Stokksnes.

TAFLA 2.9.1.
SANDKOLI. Tillögur Hafrannsóknastofnunar um aflahámark, heildaraflamark samkvæmt ákvörðunum stjórnvalda og afli (tonn) á aflamarkssvæðinu fiskveiðiárin 1995/1996–2012/2013.

DAB. *TAC recommended by the Marine Research Institute, national TAC and landings (tonnes) from the quota area in the quota years 1995/1996–2012/2013.*

Fiskveiðiár *Quota year*	Tillaga *Recommended TAC*	Aflamark *National TAC*	Afli *Landings*
1995/96	7 000	-	6 800
1996/97	7 000	-	8 200
1997/98	7 000	7 000	6 000
1998/99	7 000	7 000	4 300
1999/00	7 000	7 000	2 700
2000/01	4 000	5 500	2 300
2001/02	4 000	4 000	3 800
2002/03	7 000	7 000	4 300
2003/04	7 000	7 000	3 600
2004/05	5 000	5 000	2 600
2005/06	2 500	4 000	1 200
2006/07	1 000	2 000	800
2007/08	500	1 500	600
2008/09	500 [1)]	1 000	700
2009/10	500 [1)]	1 000	570
2010/11	500 [1)]	900	600
2011/12	500 [1)]	900	700
2012/13	500 [1)]	800	

[1)] Engar beinar veiðar. Aflamark sem nemi áætluðum aukaafla við aðrar veiðar. *No directed fishery. TAC set no higher than that which would result from dab bycatch in other fisheries.*

2.10. LONG ROUGH DAB *Hippoglossoides platessoides*

2.10.1. Landings and effort

Up until 1987 long rough dab was only bycatch in other fisheries and it was discarded. For the first years after the species was targeted landings were about 2 000 tonnes. In the years 1995–1997 landings were about 6 000 tonnes, but they have decreased since and were only about 140 tonnes in 2012 (figure 2.10.1 and table 3.10.1). About 70–90% of landed long rough dab are caught in the area from Snæfellsnes south and east to Stokksnes.

CPUE ins Danish seines on the main fishing grounds, in all hauls where long rough dab were recorded, decreased over the years 1991–1997 from 990 kg to 380 kg (figure 2.10.2). After some increase from 2000–2002 landings have decreased and were only about 170 kg in 2012.

Long rough dab is caught in all Icelandic shelf waters but the main grounds are small and associated with spawning grounds. The bulk of the catch is older fish and because of sexual dimorphism nearly all fish caught are female.

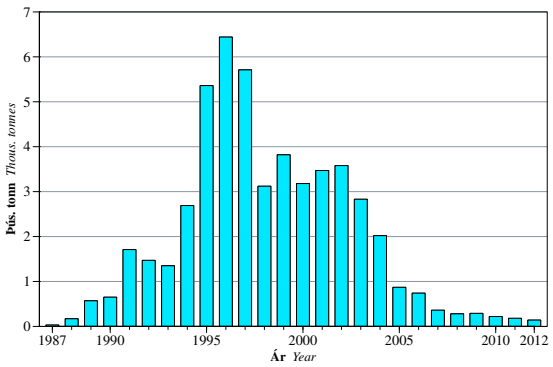
2.10.2. Stock status

The fishable stock biomass index for long rough dab based on SMB data shows a considerable decrease since 2003 (figure 2.10.2) and this index has been at an historical low in recent years.

SMB-based biomass indices of young fish started to increase in 1989 and climaxed in 1994, which indicates good recruitment in this period. The recruitment index then decreased until 2006 but has increased in recent years to a level near the average for the period 1985–2012.

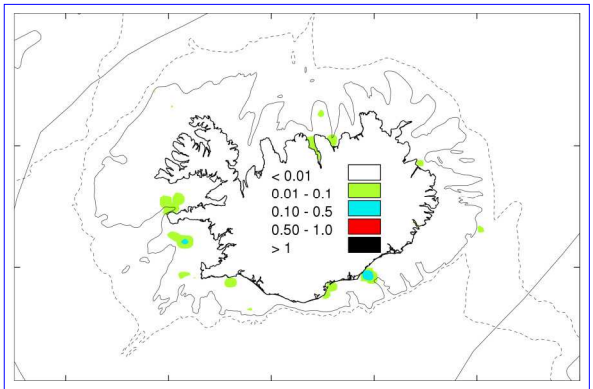
There is some disagreement about stock trends in catch logs and those in groundfish surveys, although both show considerable decrease since 2002. Most likely, this discrepancy arises because fishing targets the oldest part of the spawning stock in limited areas.

Effort and landings of long rough dab increased greatly at the end of the last century and CPUE decreased by about half at the same time. In 2002–2003 CPUE was proportionally high, But in recent years, it has been at an historical low. Large landings in the years 1995–2002 seem to have accompanied an increase in stock size.



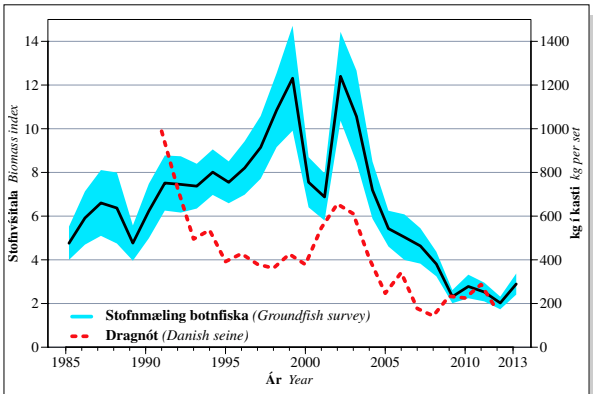
Mynd 2.10.1. **SKRÁPFLÚRA**. Heildarafli (þús. tonna) árin 1987–2012.

*Fig. 2.10.1. **LONG ROUGH DAB**. Total landings during the period 1987–2012 (thous. tonnes).*



SKRÁPFLÚRA. Veiðisvæði við Ísland árið 2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

LONG ROUGH DAB. *Fishing grounds in 2012. All gears combined. Dark areas indicate highest catch (tonnes/nmi^2).*



Mynd 2.10.2. **SKRÁPFLÚRA**. Afli á sóknareiningu (kg í kasti) hjá dragnótabátum árin 1991–2012 og vísitala veiðistofns á suðursvæði (Eystra horn að Látrabjargi) í stofnmælingu botnfiska í mars árin 1985–2013.

*Fig. 2.10.2. **LONG ROUGH DAB**. CPUE (kg per set) from seiners during the period 1991–2012 and indices of the fishable stock abundance on the southern grounds in the groundfish survey since 1985.*

2.10.3. TAC recommendations for quota year 2013/2014

Table 2.10.1 shows MRI TAC recommendations, national TAC, total landings and long rough dab landings in the management area from Snæfellsnes south to Stokksnes from the quota year 1995/1996.

CPUE and the biomass index indicate that the stock has decreased rapidly in recent years, despite landings having been well below the allocated TAC. It is unlikely that the observed decrease is a result of

fishing alone. However, it is obvious that the stock status has been poor in recent years and, though there have been indications of improved recruitment, some time will pass before those fish enter the fishable stock. Considering these trends, MRI recommends that in quota year 2013/2014 TAC should not be more than the amount of long rough dab caught as bycatch in other fisheries in the management area from Snæfellsnes south and east to Stokksnes. Judging by the estimates of stock size, this would mean about 200 tonnes.

TAFLA 2.10.1.
SKRÁPFLÚRA. Tillögur Hafrannsóknastofnunar um aflahámark, heildaraflamark samkvæmt ákvörðunum stjórnvalda og afli (tonn) á aflamarkssvæðinu fiskveiðiárin 1995/1996–2012/2013.

LONG ROUGH DAB. *TAC recommended by the Marine Research Institute, national TAC and landings (tonnes) from the quota area in the quota years 1995/1996–2012/2013.*

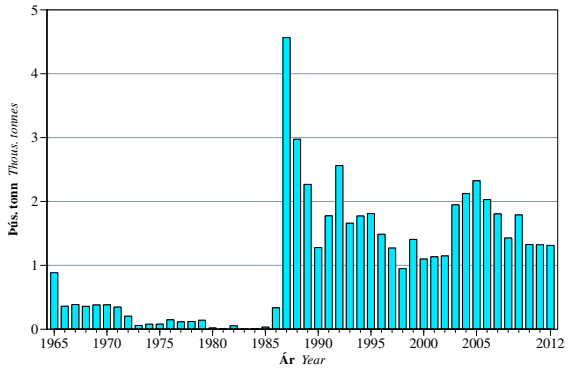
Fiskveiðiár *Quota year*	Tillaga *Recommended TAC*	Aflamark *National TAC*	Afli *Landings*
1995/96	5 000		5 300
1996/97	5 000		4 400
1997/98	5 000	5 000	3 400
1998/99	5 000	5 000	3 300
1999/00	5 000	5 000	2 800
2000/01	5 000	5 000	2 800
2001/02	5 000	5 000	2 500
2002/03	5 000	5 000	2 100
2003/04	5 000	5 000	1 600
2004/05	5 000	5 000	800
2005/06	2 000	3 500	600
2006/07	500	1 500	260
2007/08	500	1 000	210
2008/09	250[1)]	1 000	210
2009/10	200[1)]	1 000	130
2010/11	200[1)]	200	110
2011/12	200[1)]	200	80
2012/13	200[1)]	200	

1) Engar beinar veiðar. Aflamark sem nemi áætluðum aukaafla við aðrar veiðar. *No direct fishery. TAC set no higher than expected long rough dab bycatch in other fisheries.*

2.11. WITCH *Glyptocephalus cynoglossus*

2.11.1. Landings, effort, and age distribution

In the years 1950–1965 annual landings of witch from Icelandic waters were 600–1 400 tonnes and most was landed by foreign vessels (table 3.11.1). Over the next two decades annual landings were less than 400 tonnes but in 1987 about 10 Danish seine boats began targeting witch, landing just under 4 600 tonnes (figure 2.11.1 and table 3.11.1). In the years 1988–1996 annual landings ranged between 1 300–3 000 tonnes. In quota year 1996/1997 the first TAC was allocated and since then annual landings have been close to TAC. In 2012 landings totalled 1 300 tonnes of witch.



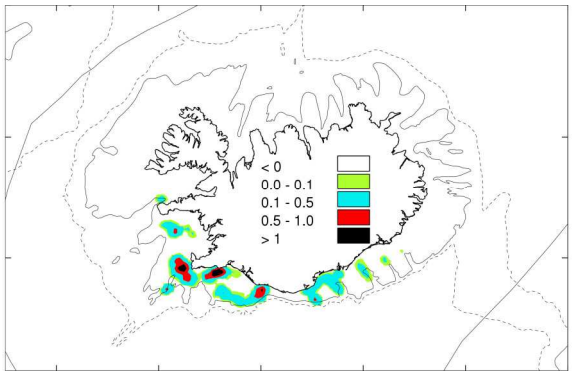
Mynd 2.11.1. **LANGLÚRA**. Heildarafli (þús. tonn) árin 1965–2012.
*Fig. 2.11.1. **WITCH**. Total landings since 1965 (thous. tonnes).*

Most of the witch landings come from the Danish seine fleet, but the proportion caught by the Norway lobster fleet has increased from just under a quarter in 2009 to nearly half of landings in the last three years. Witch is a common bycatch in the Norway lobster fishery and comparisons of fish size from lobster vessels and the MRI lobster surveys indicates that discard of small witch is probably considerable.

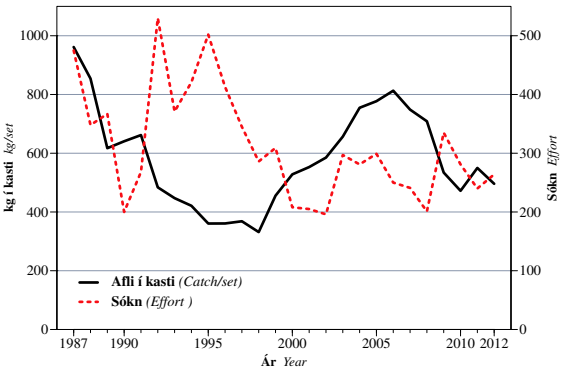
CPUE of Danish seine boats (catch per cast, where at least half is witch) was under 1 000 kg in 1987 but decreased until 1998 (figure 2.11.2) when it was 330 kg per cast. From 1998–2006 catch per cast doubled but steadily decreased to 500 kg in 2012 (figure 2.11.2).

Direct fishing for witch was heavy from 1992–1995 but then decreased until 2000. There has been no significant change in effort in the last decade but it is difficult to estimate total effort because of uncertainty about how much of the stock is taken as bycatch in the Norway lobster fishery.

Measurements of witch stock age structure in landings indicate that cohorts from 1998–2001 have been large. CPUE was high from 2003–2008 when these cohorts were the majority of the fishable stock. Last year, landings were mainly cohorts from 2003–2006.



LANGLÚRA. Veiðisvæði við Ísland árið 2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).
***WITCH.** Fishing grounds in 2012. All gears combined. Dark areas indicate highest catch (tonnes/nmi^2).*



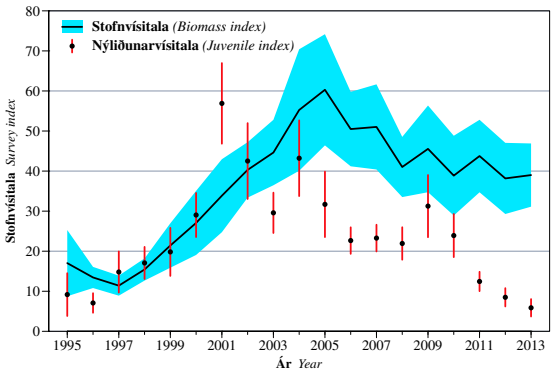
Mynd 2.11.2. **LANGLÚRA**. Sókn og afli á sóknareiningu (kg í kasti) hjá dragnótabátum 1987–2012.
*Fig. 2.11.2. **WITCH**. Effort and CPUE (kg per set) from seiners during the period 1987–2012.*

2.11.2. Groundfish survey

The fishable stock biomass index from Norway lobster surveys tripled over the period 1995–2005 (figure 2.11.3) and a similar trend is shown in SMB data. After 2005 the index from the lobster survey decreased but has not changed much in the last six years.

The frequency index of young fish (≤30 cm) increased considerably from 1996–2001 but has decreased since (figure 2.11.3). This index has been below average for the last three years.

Witch enters the fishable stock at age 3–4 and most landings are 5–8 year old fish. Results of the lobster survey in May, 2013 indicate that cohorts from 2007 and 2008 are stronger than expected. Cohorts from 2009 and 2010 are small and preliminary measurements of the cohort from 2011 suggest it is also small. Thus, poor recruitment is expected in the coming years.



Mynd 2.11.3. **LANGLÚRA**. Vísitölur veiðistofns (stærri en 30 cm) og ungfisks (30 cm og minni) í humarleiðangri 1995–2013.

*Fig. 2.11.3. **WITCH**. Abundance indices of fishable stock (> 30 cm) and juveniles (<= 30 cm) in Nephrops surveys 1995–2013.*

2.11.3. Recommended TAC for quota year 2013/2014

Table 2.11.1 shows MRI recommended TAC, national TAC and total witch landings since quota year 1994/1995.

There is a high degree of uncertainty about the stock biomass and recruitment rate of witch in the coming years. Measurements from the Norway lobster survey indicate that the fishable stock has decreased since 2005 but has remained fairly steady in recent years. Small cohorts from 2009–2011 will likely mean further decrease in the fishable stock over the next few years. MRI recommends that witch landings not exceed 1 100 tonnes in the quota year 2013/2014.

TAFLA 2.11.1.
LANGLÚRA. Tillögur Hafrannsóknastofnunar um aflahámark, heildaraflamark samkvæmt ákvörðunum stjórnvalda og afli (tonn) fiskveiðiárin 1994/1995–2012/2013.

***WITCH**. TAC recommended by the Marine Research Institute, national TAC and landings (tonnes) in the quota years 1994/1995–2012/2013.*

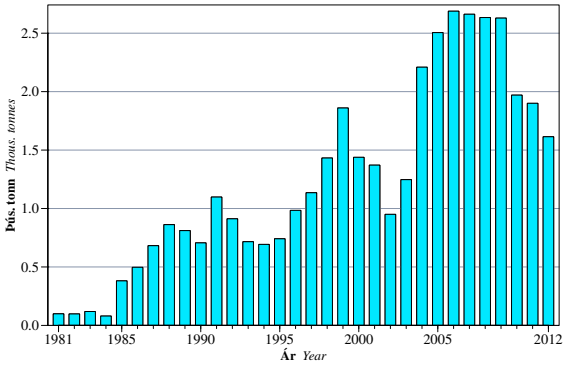
Fiskveiðiár *Quota year*	Tillaga *Recommended TAC*	Aflamark *National TAC*	Afli *Landings*
1994/95	1 500		1 760
1995/96	1 400		1 660
1996/97	1 200	1 200	1 260
1997/98	1 100	1 100	960
1998/99	1 100	1 100	1 160
1999/00	1 100	1 100	1 110
2000/01	1 100	1 100	1 160
2001/02	1 350	1 350	1 220
2002/03	1 500	1 500	1 530
2003/04	1 500	1 500	2 000
2004/05	2 000	2 000	2 250
2005/06	2 200	2 400	2 190
2006/07	2 000	2 400	2 200
2007/08	2 000	2 400	1 540
2008/09	1 600	2 200	1 700
2009/10	1 600	2 200	1 300
2010/11	1 300	1 300	1 220
2011/12	1 100	1 300	1 452
2012/13	1 100	1 100	-

2.12. LEMON SOLE *Microstomus kitt*

2.12.1. Landings, effort, and stock indices

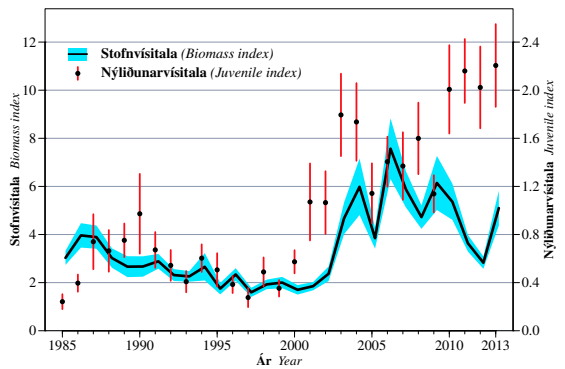
In the period 1951–1965 lemon sole landings from Icelandic waters were about 1 300–2 900 tonnes, mostly landed by foreign vessels (table 3.12.1). In 1966 landings decreased and were negligible from 1977–1984. In 1985 the lemon sole fishery was revived (figure 2.12.1); landings that year were just under 400 tonnes. Since then, landings have increased in stages and reached 2 700 tonnes in 2006, which was the largest lemon sole catch since 1963. Landings in 2012 were 1 600 tonnes.

The majority of lemon sole is caught by bottom trawl and Danish seine, though other gears are used. In the management area south and southwest of Iceland CPUE in Danish seine (In which lemon sole was ≥25% per cast) decreased from 350–400 kg in 1991–1992 to about 200 kg in 1993–1998. In 1999–2000 CPUE in the area was about 280 kg, it has increased annually and reached 550 kg last year.



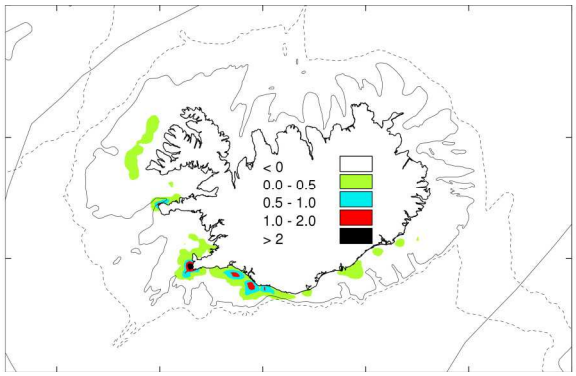
Mynd 2.12.1. **ÞYKKVALÚRA.** Heildarafli (þús. tonn) árin 1981–2012.

Fig. 2.12.1. ***LEMON SOLE.*** *Total landings during the period 1981–2012 (thous. tonnes).*



Mynd 2.12.2. **ÞYKKVALÚRA.** Vísitala veiðistofns (stofnþyngd) og ungfisks (minni en 20 cm) í stofnmælingu botnfiska í mars árin 1985–2013. Skyggða svæðið sýnir eitt staðalfrávik í mati á vísitölunni.

Fig. 2.12.2. ***LEMON SOLE.*** *Indices for fishable stock biomass and juveniles (number of fish <20 cm) in annual groundfish surveys in March 1985–2013. Shaded area shows one standard deviation in the estimate.*



ÞYKKVALÚRA. Veiðisvæði við Ísland árið 2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

LEMON SOLE. *Fishing grounds in 2012. All gears combined. Dark areas indicate highest catch (tonnes/nmi^2).*

According to SMB-based biomass indices the fishable stock decreased by about one third from 1985–2000. The fishable stock index has been high since 2003 despite some decrease in 2011–2012, but in 2013 it rose again. Furthermore, the recruitment index has been high since 2001 (figure 2.12.2).

2.12.2. Recommended TAC for quota year 2013/2014

Table 2.12.1 shows MRI TAC recommendations, national TAC and lemon sole landings since quota year 1999/2000.

The yield capacity of this stock is unknown. For three years the SMB-based fishable stock indices have been average and CPUE and recruitment have been good. Age-in-catch analysis indicates that fishing mortality is high.

TAFLA 2.12.1.
ÞYKKVALÚRA. Tillögur Hafrannsóknastofnunar um aflahámark, heildaraflamark samkvæmt ákvörðunum stjórnvalda og afli (tonn) fiskveiðiárin 1999/2000–2012/2013.

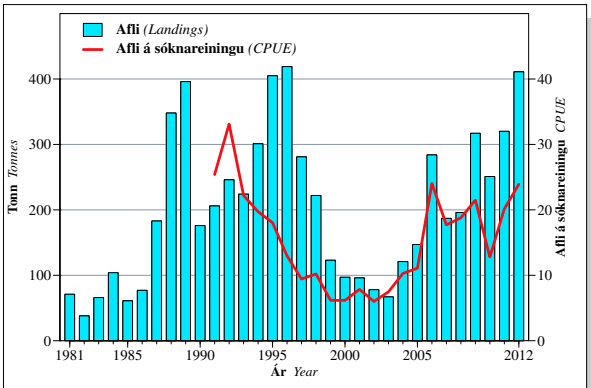
LEMON SOLE. *TAC recommended by the Marine Research Institute, national TAC and landings (tonnes) in the quota years 1999/2000–2012/2013.*

Fiskveiðiár *Quota year*	Tillaga *Recommended TAC*	Aflamark *National TAC*	Afli *Landings*
1999/2000	1 400	1 400	1 400
2000/2001	1 400	1 400	1 400
2001/2002	1 400	1 400	1 000
2002/2003	1 600	1 600	1 100
2003/2004	1 600	1 600	2 100
2004/2005	1 600	1 600	2 600
2005/2006	1 600	1 800	2 500
2006/2007	1 600	2 000	2 900
2007/2008	1 600	2 200	2 600
2008/2009	1 600	2 200	2 700
2009/2010	1 800	2 200	2 000
2010/2011	1 800	1 800	1 740
2011/2012	1 800	1 800	1 800
2012/2013	1 400	1 400	

With these considerations in mind, MRI recommends that in the quota year 2013/2014 landings should not exceed 1 600 tonnes.

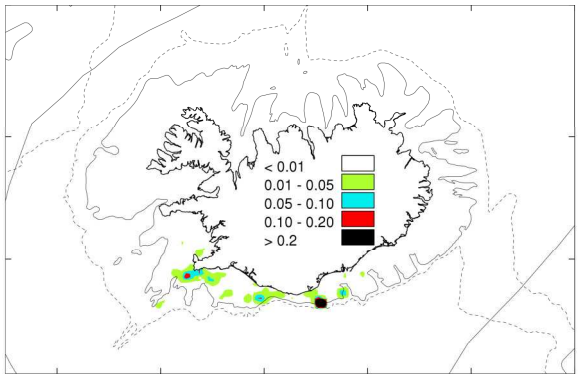
2.13. MEGRIM *Lepidorhombus whiffiagonis*

In the period 1951–1973 annual megrim landings ranged between 400–700 tonnes, most of which was landed by foreign vessels (table 3.13.1). Starting in 1974 decreased to a range of only 40–100 tonnes in 1981–1986 (figure 2.13.1 and table 3.13.1). In the years after 1986 landings have been variable, ranging from 420 tonnes in 1996 to 67 tonnes in 2003. Landings in 2012 were 410 tonnes.



Mynd 2.13.1. **STÓRKJAFTA**. Heildarafli (tonn) árin 1981–2012 og afli á sóknareiningu í dragnót (kg í kasti) 1991–2012.

*Fig. 2.13.1. **MEGRIM**. Total landings during the period 1981–2012 (tonnes) and CPUE (kg per set) from seiners during the period 1991–2012.*



STÓRKJAFTA. Veiðisvæði við Ísland árið 2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

***MEGRIM**. Fishing grounds in 2012. All gears combined. Dark areas indicate highest catch (tonnes/nmi^2).*

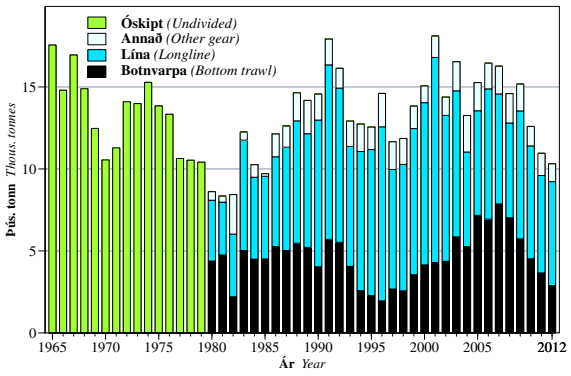
Megrim is mostly bycatch in Danish seine and lobster trawl, but some is caught in bottom trawls. CPUE in Danish seines (considering only hauls from deeper than 100 m and all megrim landings in Danish seines from Snæfellsnes south to Stokksnes) decreased from 1992 until 1999 and was rather little in 2003. Since then, CPUE has increased somewhat (figure 2.13.1). Population size, fishing pressure, and yield capacity are all unknown for megrim.

The Marine Research Institute does not recommend a TAC for megrim for the quota year 2013/2014.

2.14. ATLANTIC WOLFFISH *Anarhichas lupus*

2.14.1. Landings and effort

Wolffish landings in 2012 were over 10 thous. tonnes, nearly 700 tonnes less than in 2011 and the smallest landings since 1985 (figure 2.14.1 and table 2.14.1). Longlines have accounted for as much as or more than half of landings, whereas bottom trawl has provided 20–50% of landings.



Mynd 2.14.1. STEINBÍTUR. Heildarafli (þús. tonna) árin 1965–2012 skipt eftir veiðarfærum frá 1980.

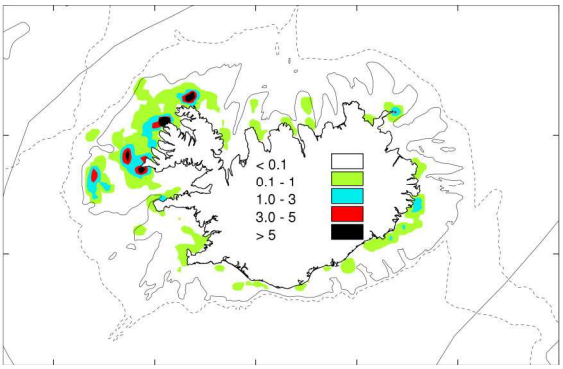
Fig. 2.14.1. ATLANTIC WOLFFISH. Total landings during the period 1965–2012 (thous. tonnes) split by gear since 1980.

2.14.2. Groundfish survey

According to SMB data the distribution of Atlantic wolffish is rather even throughout the research area, though the highest density is seen along the south of the region called the West Fjords. Atlantic wolffish appears first in the groundfish surveys at the age of one year old, which is about seven years before it joins the fishable stock. Figure 2.14.2 shows the fishable stock index and the recruitment index according to SMB data. The recruitment index is the number of 20–40 cm Atlantic wolffish that are about 4-9 years old, and the fishable stock index is the biomass of Atlantic wolffish >60 cm. According to SMB data the fishable stock index dropped by more than half from 1985–1995 but then grew again with much variability and this year it is near to the historical average. Also, according to analysis of the SMB data recruitment was good from 1991–1998, but has since decreased and the recruitment indices from 2009–2013 are lower than they ever have been. Rising fishable stock biomass in 1995–2008 agree with good recruitment in the previous years.

2.14.3. Stock status

Estimation of wolffish stock size is calculated using an age-length model (Gadget, see Appendix 5.1) but an ADAPT model and a time series analysis are also considered. The results of these models are



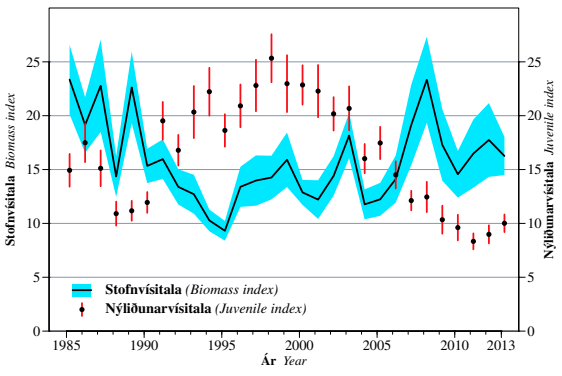
STEINBÍTUR. Veiðisvæði við Ísland árið 2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

ATLANTIC WOLFFISH. Fishing grounds in 2012. All gears combined. Dark areas indicate highest catch (tonnes/nmi^2).

comparable. figure 2.14.3 shows trends in fishable stock and fishing mortality of wolffish that have entered the fishable stock. Estimated fishing mortality has been above that which provides maximum yield (F_{max}=0.29) since 1978. In 2012 fishing mortality was 0.37, which is one of the lowest since 1979. Fishable stock has decreased by almost a third since 2006 and is now close to average. Due to poor recruitment in recent years (figure 2.14.2) further decrease in fishable stock is to be expected unless effort is greatly decreased.

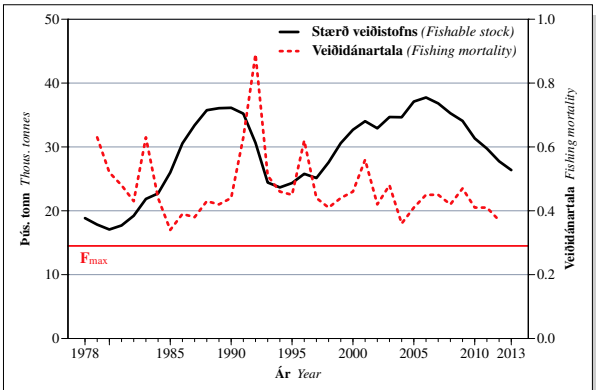
2.14.4. Recommended TAC for quota year 2013/2014

Wolffish landings have exceeded TAC for years (table 2.14.1) and fishing mortality has been above F_{MSY}. It is likely that the yield capacity of the stock will decrease in coming years as only small cohorts enter the fishable stock. MRI recommends that



Mynd 2.14.2. STEINBÍTUR. Vísitala veiðistofns (þyngd) og nýliðunarvísitala (fjöldi fiska 20–40 cm) í stofnmælingu botnfiska í mars árin 1985–2013.

Fig. 2.14.2. ATLANTIC WOLFFISH. Stock index (biomass) and recruitment index (number of fish 20–40 cm) in annual groundfish survey in March during 1985–2013.



Mynd 2.14.3. **STEINBÍTUR**. Stærð veiðistofns (þús. tonna) 1978–2013 og veiðidánartala 70 cm og stærri steinbíts (F) 1979–2012 samkvæmt Gadget líkani.

Fig. 2.14.3. ***ATLANTIC WOLFFISH****. Fishable stock size (thous. tonnes) 1978–2013 and F of 70 cm and longer wolfish 1979–2012 based on the Gadget model.*

fishing mortality be lowered to that which will attain the maximum sustainable yield (F_{max}=0.29), which is about 7 500 tonnes in the quota year 2013/2014. Furthermore, MRI repeats previous recommendations for a closure of the wolffish spawning grounds at Látragrunn during the spawning and rearing season.

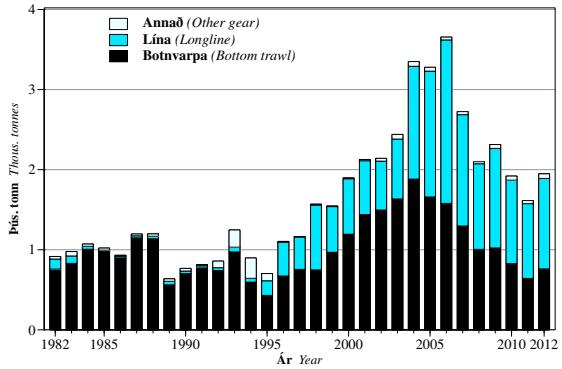
Tafla 2.14.1
STEINBÍTUR. Tillögur Hafrannsóknastofnunar um aflahámark, heildaraflamark samkvæmt ákvörðunum stjórnvalda og afli (tonn) fiskveiðiárin 1996/1997–2012/2013.
ATLANTIC WOLFFISH. *TAC recommended by the Marine Research Institute, national TAC and landings (tonnes) in the quota years*

Fiskveiðiár *Quota year*	Tillaga *Rec TAC*	Aflamark *National TAC*	Afli *Landings*
1996/97	13 000	13 000	11 523
1997/98	13 000	13 000	11 689
1998/99	13 000	13 000	13 051
1999/00	13 000	13 000	14 906
2000/01	13 000	13 000	18 094
2001/02	13 000	16 100	13 667
2002/03	15 000	15 000	16 953
2003/04	15 000	16 000	13 253
2004/05	13 000	16 000	14 208
2005/06	13 000	13 000	16 473
2006/07	12 000	13 000	15 796
2007/08	11 000	12 500	15 159
2008/09	12 000	13 000	15 430
2009/10	10 000	12 000	13 128
2010/11	8 500	12 000	12 122
2011/12	7 500	10 500	10 602
2012/13	7 500	8 500	

2.15. SPOTTED WOLFFISH *Anarhichas minor*

2.15.1. Landings and effort

Spotted wolffish landings in 2012 were more than 1 900 tonnes, about 300 tonnes more than 2011 (figure 2.15.1 and table 3.15.1). From 1982–1997 landings averaged less than 1 000 tonnes, mostly caught in bottom trawl. After that, landings increased, reaching almost 3 700 tonnes in 2006, before decreasing again. Since 1995 longlines have become more common, landing over half of the catch last year while bottom trawl took almost half of landings.

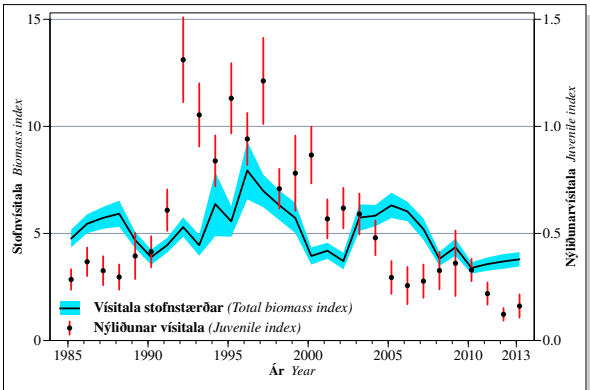


Mynd 2.15.1. **HLÝRI**. Heildarafli (þús. tonna) árin 1982–2012 skipt eftir veiðarfærum.

Fig. 2.15.1. ***SPOTTED WOLFFISH****. Total landings by gear during the period 1982–2012 (thous. tonnes).*

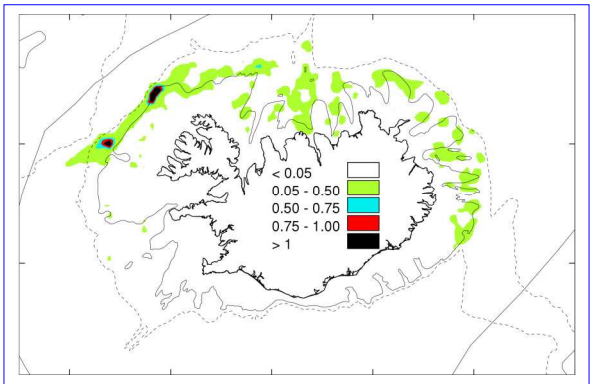
2.15.2. Groundfish survey

Spotted wolffish is mostly seen in the SMB off the West and East Fjords, though it is not uncommon off the north coast as well. They appear in the SMB at one year of age, about 4 years before it enters the fishable stock. Figure 2.15.2 shows recruitment and biomass indices from SMB data and figure 2.15.3 shows the fishable stock biomass index. The recruitment index is the number of fish 20–40 cm that are 2–4 years old, the biomass index is the weight of spotted wolffish >10 cm and the fishable stock biomass index is the weight of fish >60 cm.



Mynd 2.15.2. **HLÝRI**. Heildarvísitala (þyngd) og nýliðunarvísitala (fjöldi fiska 20–40 cm) í stofnmælingu botnfiska í mars árin 1985–2013.

Fig. 2.15.2. ***SPOTTED WOLFFISH****. Stock index (biomass) and recruitment index (number of fish 20–40 cm) in the annual groundfish survey in March 1985–2013.*

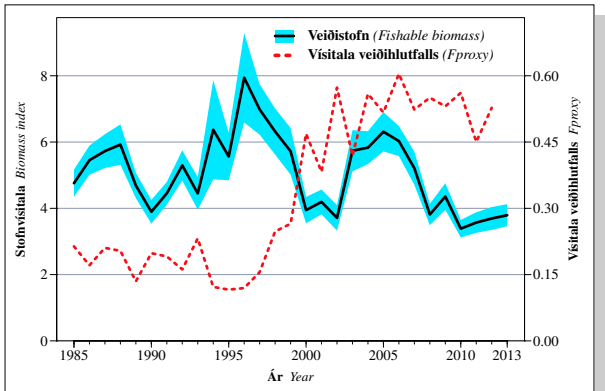


HLÝRI. Veiðisvæði við Ísland árið 2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

SPOTTED WOLFFISH*. Fishing grounds in 2012. All gears combined. Dark areas indicate highest catch (tonnes/nmi^2).*

2.15.3. Stock status

According to SMB data, spotted wolffish biomass and recruitment are at an historical low. From 1985–1997 average landings were almost 1 000 tonnes, but SMB data showed that then the stock biomass was steady and then growing. Catches from 1998–2012 were between 1 500–3 700 tonnes and the harvest rate index (catch/fishable stock biomass) has been high compared to that in the period 1985–1997 (figure 2.15.3 and Appendix 5.1).



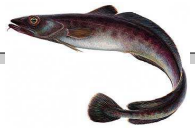
Mynd 2.15.3. **HLÝRI**. Vísitala veiðistofns (þyngd) í stofnmælingu botnfiska í mars 1985–2013 og vísitala veiðihlutfalls 1985–2012.

Fig. 2.15.3. ***SPOTTED WOLFFISH****. Fishable biomass index in the annual groundfish survey in March 1985–2013 and F_{proxy} in 1985–2012.*

2.15.4. Recommended TAC for quota year 2013/2014

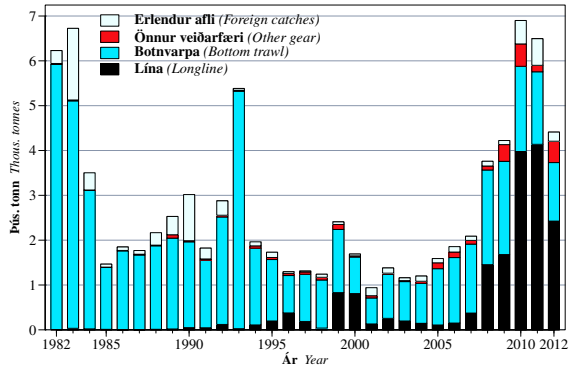
The potential yield of spotted wolffish is poorly understood and few studies are ongoing on the species. The MRI asserts that landings have exceeded the yield capacity of the stock since 1998. The MRI recommends that directed effort be decreased significantly and that in quota year 2013/2014 landings should not exceed 900 tonnes. Such a TAC would lead to a fishing mortality of half what it has been in recent years.

2.16. BLUE LING *Molva dypterygia*



2.16.1. Landings and effort

Blue ling landings ranged between 1 000–3 000 tonnes from 1985–2008, with the exception of 1993 (figure 2.16.1 and table 3.16.1). Landings in 2010 were 6 900 tonnes, which were the largest since 1981. Landings decreased greatly in 2011 and in 2012 were about 4 400 tonnes. Icelandic vessels landed about 4 200 tonnes, 95% of total landings.



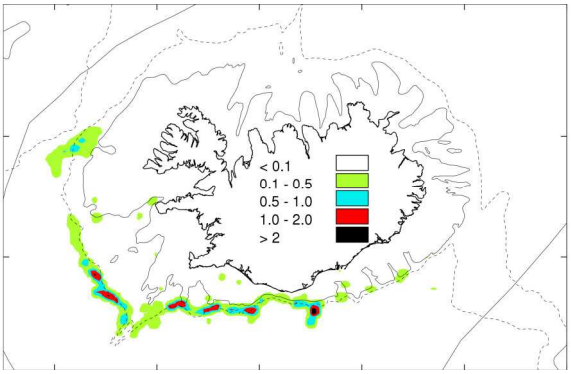
Mynd 2.16.1. BLÁLANGA. Heildarafli (þús. tonna) á Íslandsmiðum árin 1982–2012 skipt eftir veiðarfærum.

Fig. 2.16.1. BLUE LING. Total landings from Iceland waters during the period 1982–2012 (thous. tonnes) divided by gear.

Fishing of spawning blue ling occurred south of the Westman Islands from 1980–1984 and Icelandic landings of blue ling totalled about 8 000 tonnes in 1980 and 1981. The increase in landings in 1993 is mostly due to temporary fishing on the Franshól at the edge of the Icelandic EEZ east of the Reykjanes Ridge. This direct targeting of spawning blue ling seems to have far exceeded the yield capacity of the stock. From 1993 until 2007 blue ling was mostly bycatch in bottom trawls. From 2008 until 2010 blue ling directed longline increased in popularity and in 2011 these lines accounted for 70% of Icelandic landings. This proportion decreased to about 58% in 2012. This dramatic increase in longline landings is accounted for by direct targeting in summer months. Blue ling as bycatch in the redfish and Greenland halibut fisheries is increasing in deep water off the West Fjords, which reflects the north-western range expansion of the species seen in surveys.

2.16.2. Groundfish surveys

According to survey data, both in spring (SMB) and fall (SMH), blue ling stock increased after 2005 and seem to have reached a high point in 2010. The SMH-based fishable stock biomass index shows a decreased of about one quarter between the years 2010 and 2012. However, the SMB-based index from 2013 indicate that the blue ling biomass in only



BLÁLANGA. Veiðisvæði við Ísland árið 2012. Öll veiðarfæri. Dökku svæðin sýna mestan afla (tonn/sjm^2).

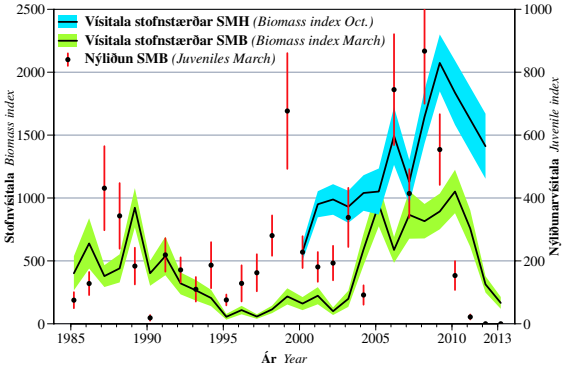
BLUE LING. Fishing grounds in 2012. All gears combined. Dark areas indicate highest catch (tonnes/nmi^2).

about 20% of the measured biomass in 2010. Recruitment indices from both SMH and SMB in 2012 are the lowest ever (figure 2.16.2). The SMH data is a better measurement of blue ling stocks than SMB because the sampling stations in the SMH cover the species' range more efficiently.

2.16.3. Stock status

Last year the results of a Gadget model were presented. The one limitation in the use of the Gadget model is that age structure data is lacking and therefore the model has to rely more heavily on assumptions of growth. Thus, it is not possible to base policy recommendations solely on the results of this model. This model was not used this year due to a lack of age disaggregation data.

It is clear that the stock has decreased in recent



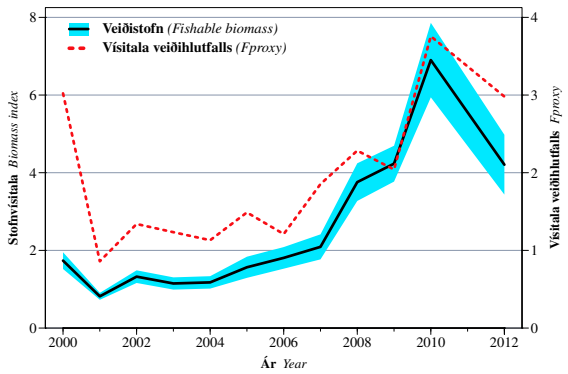
Mynd 2.16.2. BLÁLANGA. Stofnvísitala (þyngd) blálöngu 40 cm og stærri í stofnmælingu botnfiska í október 2000–2012 og mars 1985–2013 ásamt vísitölu ungfisks í mars.

Fig. 2.16.2. BLUE LING. Biomass index in the annual groundfish survey in October 2000–2012 and in March 1985–2013. Recruitment index from March survey is also shown.

years and that the harvest rate index has increased rapidly since 2007 as a result of blue ling directed effort by longline vessels. On the other hand, the harvest rate index decreased from 2010 through 2012 but is still much higher than the average for the period 2002–2009 when the stock increased.

2.16.4. Recommended TAC for quota year 2013/2014

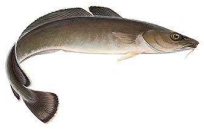
Since the potential yield of blue ling is poorly understood and few studies are ongoing on the species exploitation should be limited. The MRI considers the large increase in landings in recent years is well above the yield capacity of the stock and recommends that in quota year 2013/2014 landings should not exceed 2 400 tonnes. This recommendation would lead to a harvest rate similar to that in 2002–2009 when the stock increased. Furthermore, recommended is a continued seasonal closure of known spawning grounds south of the Westman Islands and on the Franshól during the spawning season from 15. February until 30. April each year.



Mynd 2.16.3. **BLÁLANGA**. Vísitala veiðistofns í stofnmælingu að hausti og vísitala veiðihlutfalls (afli/stofnvísitölu) árin 2000–2012.

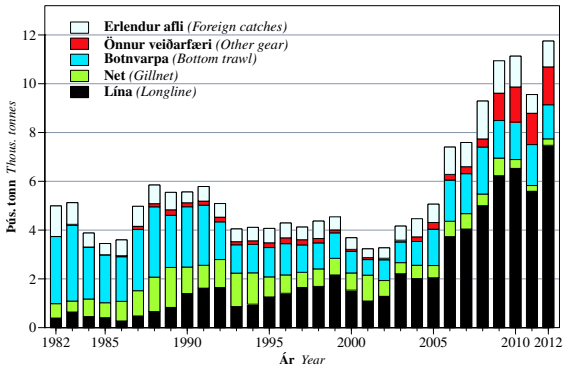
*Fig. 2.16.3. **BLUE LING**. Biomass index in the annual groundfish survey in autumn 2000–2012 and Fproxy.*

2.17. LING *Molva molva*



2.17.1. Landings and effort

Ling landings from Icelandic waters in 1982–2012 are shown in figure 2.17.1 and dating back to 1950 in table 3.17.1. Landings were largest in 1971 at about 15 thous. tonnes. In the years 1982–2005 landings ranged from 3 200 to 5 900 tonnes but have increased since then to about 11 thous. tonnes in 2009 and 2010 before decreasing somewhat in 2011. Landings in 2012 were about 11 800 tonnes, of which 11 thous. tonnes were landed by Icelandic vessels. In the last three decades, Icelandic vessels have landed about 85–90% of the ling caught in Icelandic waters, but previous to this period foreign vessels landed a larger proportion (table 3.17.1).



Mynd. 2.17.1. LANGA. Heildarafli (þús. tonna) og afli íslenskra skipa árin 1982–2012 skipt eftir veiðarfærum.

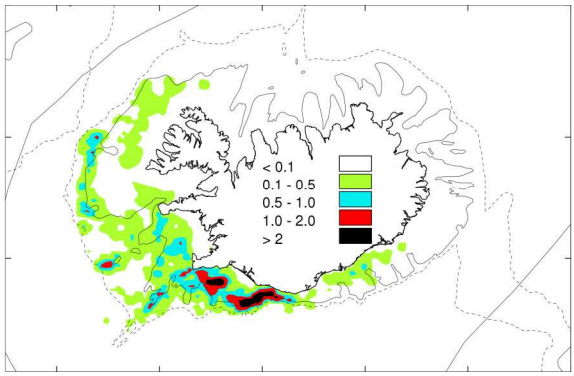
Fig. 2.17.1. LING. Landings from Icelandic waters during the period 1982–2012 (thous. tonnes) divided by gear.

The gears used favored by ling fishermen have changed much over the years. The proportion of landings caught by longline has increased from 11% in 1982–1989 to 64% in 2012. Gillnets have declined in popularity and in 2012 only accounted for about 2% of total landings compared to about 24% in the years 2000 to 2002. In 2012 bottom trawlers caught about 12% of the total landings, which is a lower proportion than in previous years. CPUE over the last four years has been higher than any time since 1991 when statutory registration of fishing logs began.

2.17.2. Stock status

The SMB-based bipomass index for ling decreased by more than half from 1985–2001. Since 2005 the biomass index has increased considerably and in 2013 it was the highest it has been since surveys began (figure 2.17.2). The recruitment index has decreased much from the high point in 2004 to 2010 but is still near the mean for the period 1985–2004.

Fproxy (sjá viðauka 5.1) was rather high from 1994 until 2003 but decreased rapidly with increasing biomass indices from 2004–2007 (figure 2.17.2). Fproxy in 2012 was near the average from 2004–2007 when it was lowest.



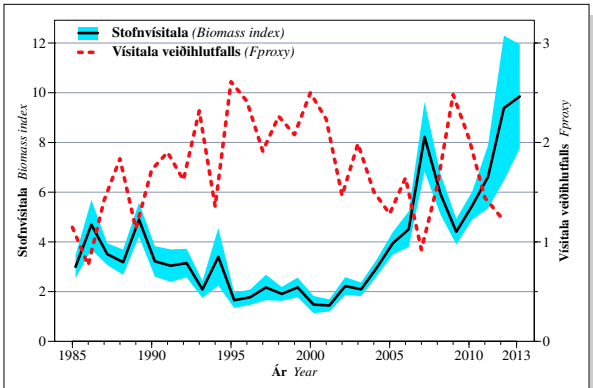
LANGA. Veiðisvæði við Ísland árið 2012. Öll veiðarfæri. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

LING. Fishing grounds in 2012. All gears combined. Dark areas indicate highest catch (tonnes/nm^2).

Over the last two years, a Gadget population model for ling has been in development. The most significant impediment to the use of this model is the lack of age data and for this reason recommendations cannot be based solely on the results of this model. However, the model does follow trends in data fairly well and it indicates that stock size has increased considerably in recent years and fishing mortality has decreased. In 2012 fishing mortality was just above optimum.

2.17.3. Projections TAC recommendations for the quota year 2013/2014

Table 2.17.1 shows MRI TAC recommmendations, allocated TAC total ling



Mynd. 2.17.2. LANGA. Stofnvísitala (þyngd) löngu 40 cm og stærri í stofnmælingu botnfiska í mars árin 1985–2013 og vísitala veiðihlutfalls (afli/stofnvísitölu).

Fig. 2.17.2. LING. Biomass index (>40 cm) in the annual groundfish survey in March during 1985–2013 and F_{proxy} (catch/index).

landings from the quota year 1999/2000.

The results of the groundfish survey and trends in CPUE indicate that the ling stock has increased rapidly since 2000 and has reached an historical maximum. However, Fproxy increased substantially from 2007–2010, which was caused by effort far above the recommendations and allocated TAC. This is explained by landings from foreign vessels as well as species conversion within the management system.

MRI recommends that TAC for the quota year 2013/2014 not exceed 14 thous. tonnes, including landings by foreign vessels which have averaged about 1 200 tonnes over the last four years. This recommendation aims at returning Fproxy to where it was from 2004 until 2008. The results of the Gadget model indicate that this harvest rate is close to optimum (F_{MSY}).

Tafla 2.17.1.
LANGA. Tillögur Hafrannsóknastofnunar um aflahámark, heildaraflamark samkvæmt ákvörðunum stjórnvalda og afli (tonn) fiskveiðiárin 1999/2000–2012/2013.

LING. *TAC recommended by the Marine Research Institute, national TAC and landings (tonnes) in the quota years 1999/2000–2012/2013.*

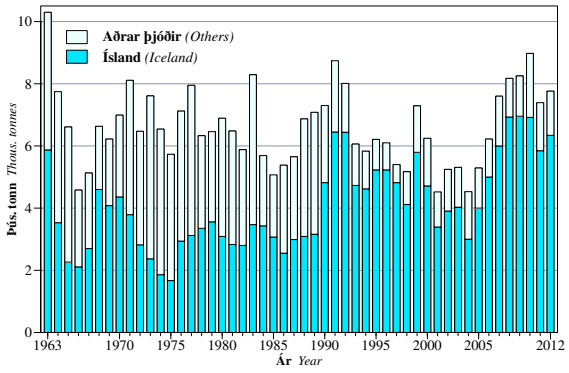
Fiskveiðiár *Quota year*	Tillaga *Rec TAC*	Aflamark *National TAC*	Afli Ísland Landings Iceland	Afli annarra Landings others	Heildarafli *Total landings*
1999/00	-	-	3 496	475	3 961
2000/01	-	-	3 182	359	3 451
2001/02	3 000	3 000	2 542	426	2 968
2002/03	3 000	3 000	3 137	578	3 715
2003/04	3 000	3 000	3 864	744	4 608
2004/05	4 000	4 000	4 488	750	5 238
2005/06	4 500	5 000	5 842	1 119	6 961
2006/07	5 000	5 000	6 625	992	7 617
2007/08	6 000	7 000	7 008	1 552	8 560
2008/09	6 000	7 000	9 160	1 329	10 489
2009/10	6 000	7 000	9 450	1 263	10 713
2010/11	7 500	7 500	9 327	768	10 095
2011/12	8 800	9 000	10 074	1 059	11 133
2012/13	12 000	11 500			

2.18. TUSK *Brosme brosme*

2.18.1. Landings and effort

Tusk landings from Icelandic waters from 1963 until 2012 are shown in figure 2.17.1 and table 3.17.1. In 1963 landings were at an historical low of just over 10 thous. tonnes. For many years, tusk landings have been about 5 000–8 000 tonnes and in 2012 landings were 7 800 tonnes, which was almost 400 tonnes more than in 2011. Since 1991 Icelanders have caught 75–80% of landings and Faroese vessels accounted for the remainder. Icelandic tusk landings were over 6 300 tonnes in 2012. From 2004–2010 doubled and were about 7 000 tonnes from 2008 until 2010 which is the most Icelandic vessels have ever landed.

In recent years, the majority (95%) of tusk landings have been caught by longline.



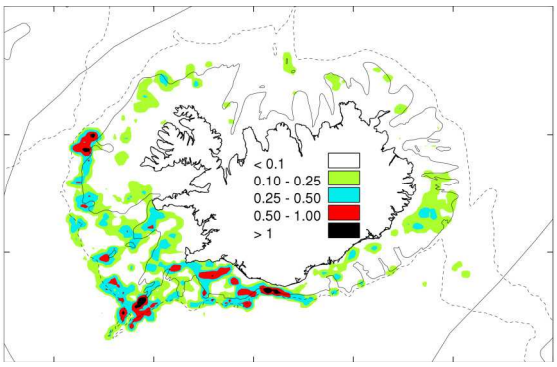
Mynd 2.18.1. KEILA. Heildarafli (þús. tonna) og afli Íslenskra skipa á Íslandsmiðum árin 1963–2012.

Fig. 2.18.1. TUSK. Landings from Icelandic waters during the period 1963–2012 (thous. tonnes).

2.18.2. Groundfish surveys

Tusk is caught at almost half of the sampling stations of the spring groundfish survey (SMB), on average. Their distribution is even and data are similar from year to year. Also, there is consistency between the SMB and the fall stock survey (SMH) although less tusk is caught in the latter. In the SMB tusk has even been found off the West Fjords and southeast of Iceland.

The fishable biomass index from the SMB decreased rapidly from 1989-1995 and remained low until 2001 (figure 2.18.2). From 2002-2006 it grew quickly and then was relatively steady until 2010, but some increase occurred in 2011 and 2012, though decrease has occurred in 2013. The biomass index of young fish increased from 1996 until reaching an historical maximum in 2006. Since 2007 the young fish biomass index has decreased rapidly and is now as low as it was from 1993-1996.



KEILA. Veiðisvæði keilu við Ísland árið 2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

TUSK. Fishing grounds in 2012. All gears combined. Dark areas indicate highest catch (tonnes/nm^2).

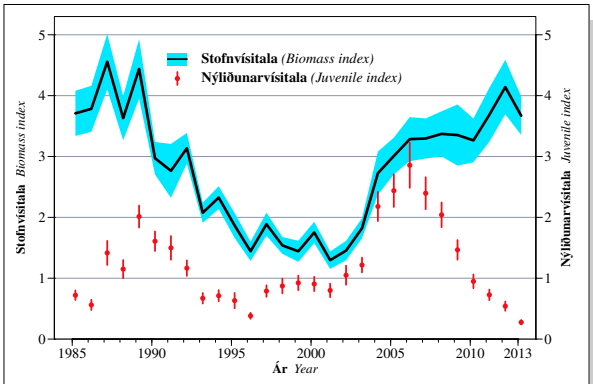
2.18.3. Stock status

Recommendations from ICES and MRI are based on the Gadget model (see Appendix 5.1).

Stock assessments are consistent in 2012 and 2013 in regards to recruitment and fishing mortality but estimates of spawning stock biomass in 2012 are lower in assessments in 2013.

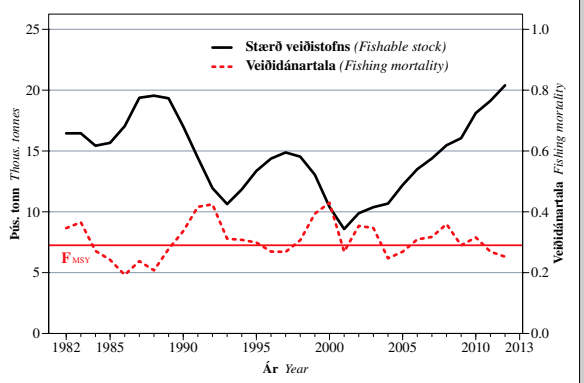
Figure 2.17.3 shows trends in fishable stock and fish mortality for tusk that have entered fishable stock. Fishing mortality in 2012 is estimated at 0.22. A fishing mortality of 0.24 is thought to give F_{MSY} but fishing mortality has usually been above this level since 1982.

The fishable stock was 15–19 thous. tonnes from 1980–1988, decreased in the 1990s and was about 8 thous. tonnes in 2000. In the last 9 years it has roughly doubled and is now near the historical high of about 20 thous. tonnes.



Mynd 2.18.2. KEILA. Vísitala veiðistofns (í þyngd, fiskar 40 cm og stærri) og fjöldavísitala ungkeilu (fjöldi fiska 40 cm og minni) í stofnmælingu botnfiska árin 1985–2013.

Fig. 2.18.2. TUSK. Biomass index for fishable stock (biomass 40 cm and larger) and abundance index for juveniles (fish less than 40 cm) in annual groundfish surveys 1985–2013.

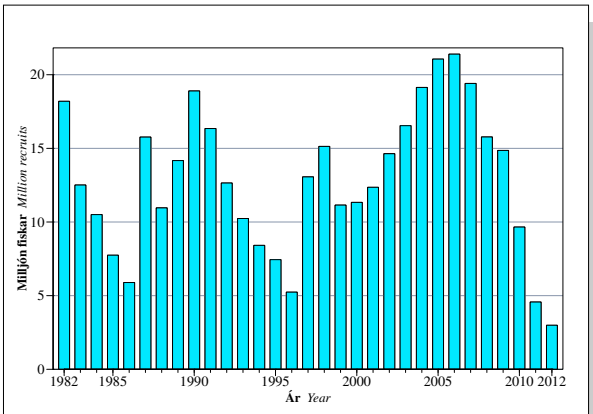


Mynd 2.18.3. Keila. Stærð veiðistofns (þús. tonna) 1982–2013 og veiðidánartala (F) 1982–2012.

Fig. 2.18.3. Tusk. Fishable stock size (thous. tonnes) 1982–2013 and F 1982–2012.

Results of the Gadget model show that tusk recruitment (at age 3) was very good from 1998–2008 but since has fallen and they indicate that cohorts from 2008 and 2009 are the smallest in history (figure 2.18.4). This is consistent with the survey data. According to the model, the total stock biomass will decrease and decrease in the fishable and spawning stocks is expected in coming years.

Tusk is a rather slow-growing species with an annual growth of about 3-5 cm. Tusk enter the fishable stock at about 40 cm of length but do not reach sexual maturity until about 55 cm. Therefore, about 3-5 years pass between the time the fish enter the fishable population and the time they can start spawning. Heavy fishing can lead to only a small proportion of the stock being able to spawn.



Mynd 2.18.4. **KEILA**. Nýliðun við þriggja ára aldur 1982–2012.

*Fig. 2.18.4. **TUSK**. Recruitment at age 3 in 1982–2012.*

Tafla 2.18.1.
KEILA. Tillögur Hafrannsóknastofnunar um aflahámark, heildaraflamark samkvæmt ákvörðunum stjórnvalda og heildarafli (tonn) fiskveiðiárin 2001/2002–2011/2012.

***TUSK**. TAC recommended by the Marine Research Institute, national TAC and total landings (tonnes) in the quota years 2001/2002–2012/2013.*

Fiskveiðiár *Quota year*	Tillaga *Rec TAC*	Aflamark *National TAC*	Afli íslendinga Landings Iceland	Afli annara Landings others	Heildarafli *Total-landings*
2001/02	-		3 534	1 342	4 876
2002/03	3 500	3 500	3 762	1 284	5 046
2003/04	3 500	3 500	3 428	1 530	4 958
2004/05	3 500	3 500	3 616	1 285	4 901
2005/06	3 500	3 500	4 387	1 541	5 928
2006/07	5 000	5 000	6 336	1 606	7 942
2007/08	5 000	5 500	6 351	1 243	7 594
2008/09	5 000	5 500	6 865	1 297	8 162
2009/10	5 000	5 500	6 325	2 057	8 382
2010/11	6 000	6 000	6 223	1 545	7 777
2011/12	6 900	7 000	5 981	1 420	7 401
2012/13	6 700	6 400			

2.18.4. Recommended TAC for quota year 2013/2014

Table 2.18.1 shows MRI recommendations, national TAC and tusk landings since 2001/2002. Landings have always exceeded recommended TAC, due to landings from Icelandic waters by foreign vessels and to species conversions within the management system.

MRI recommends that in quota year 2013/2014 landings should not be more than 6 300 tonnes, including foreign landings from Icelandic waters, which have often been a quarter of total landings over the last 5 years. This recommendation is aimed at achieving maximum sustainable yield. Furthermore, an area closure is recommended for the tusk rearing grounds off the south and southeast coast.

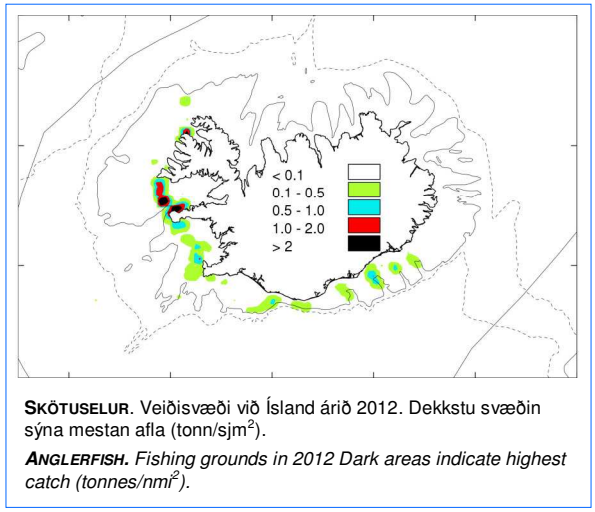
2.19. ANGLERFISH *Lophius piscatorius*

2.19.1. Landings, effort and distribution

In 2012 anglerfish landings were about 2 700 tonnes. Landings have decreased since 2009, when an historical high of 4 100 tonnes was reached (table 3.19.1 and figure 2.19.1). Landings in quota year 2011/2012 were about 3 000 tonnes and in the first seven months of quota year 2012/2013 landings are 23% lower than last year. From 2000–2010 about half of landings were caught by gillnet and the rest in Danish seine and bottom trawl, but from 2011–2012 gillnets caught more than 60% of landings.

From 2001 CPUE rose in most gears. in 2012 CPUE in bottom trawls and gillnets was high, whereas Danish seine CPUE decreased. Effort has decreased in all gears.

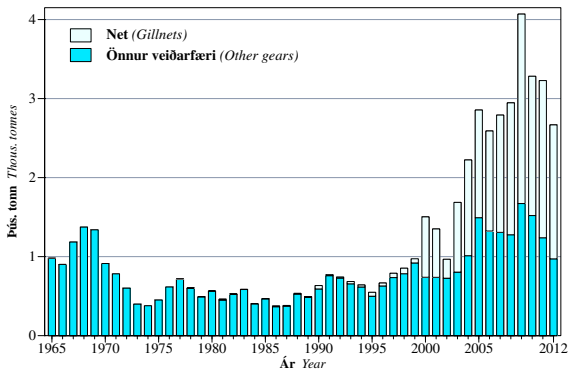
When anglerfish recruitment was good a lot of young fish were caught as bycatch in other gears than gillnet, especially in the Norway lobster fishery. This high proportion of young anglerfish in landings has been decreasing in recent years.



SKÖTUSELUR. Veiðisvæði við Ísland árið 2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

ANGLERFISH. *Fishing grounds in 2012 Dark areas indicate highest catch (tonnes/nmi^2).*

Traditional fishing grounds were off the centre to eastern edge of the south coast. In recent years favoured fishing grounds are off the west coast, especially Snæfellsnes. SMB data show the same trend in distribution. This change in distribution is most likely caused by rising sea temperatures.

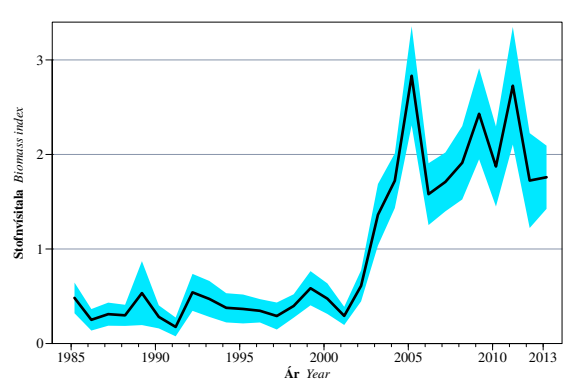


Mynd 2.19.1. **SKÖTUSELUR**. Heildarafli (tonn) árin 1965–2012.

Fig. 2.19.1. ***ANGLERFISH.*** *Total landings (tonnes) during the period 1965–2012.*

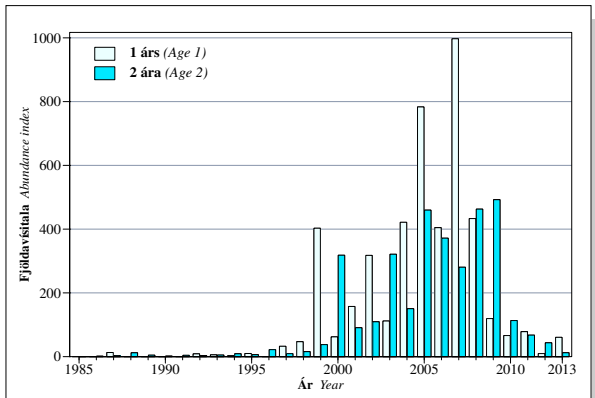
2.19.2. Stock status

Anglerfish grow quickly for the first 4–5 years of life and biomass indices show that the fishable stock increased rapidly after 2000 (figure 2.19.2) because of good recruitment (figure 2.19.3). Since then, the fishable stock biomass index has remained high in relation to the period before 2000. Biomass indices of fish age one and two (figure 2.19.3) indicate that the 2012 is small or similar to those of the years 2008–2011. Thus, the last five cohorts of the stock are thought to be small.



Mynd 2.19.2. **SKÖTUSELUR**. Vísitala veiðistofns (í þyngd, fiskar > 60 cm) í stofnmælingu botnfiska í mars árin 1985–2013. Skyggða svæðið sýnir eitt staðalfrávik í mati á vísitölunni.

Fig. 2.19.2. ***ANGLERFISH.*** *Biomass indices for fishable stock (> 60 cm) in annual groundfish surveys in March 1985–2013. Shaded area show one standard deviation in the estimate.*



Mynd 2.19.3. **SKÖTUSELUR**. Vísitala ungfisks (eins og tveggja ára í fjölda) í stofnmælingu botnfiska í mars árin 1985–2013.

Fig. 2.19.3. ***ANGLERFISH.*** *Abundance indices for age 1 and 2 in annual groundfish surveys in March 1985–2013.*

2.19.3. Projections and recommended TAC for quota year 2013/2014

Table 2.19.1 shows MRI TAC recommendations and anglerfish landings since quota year 2001/2002.

Survey and CPUE data indicate that the fishable stock of anglerfish is still rather large, but will decrease. Stock biomass indices have decreased little between 2012 and 2013 and the biomass index for fish ≥ 60 cm is nearly standing still. All cohorts from 2008–2012 are thought to be small so it is expected that fishable stock will decrease if effort continues at the rate it has been in recent years. Recruitment over the last five years is similar to that before 2000 but then annual landings were between 500–700 tonnes.

Considering these factors, MRI recommends that effort be decreased and that TAC for quota year 2013/2014 be set at 1 500 tonnes. Moreover, MRI recommends that new methods need to be found to reduce bycatch of young anglerfish in towed gears.

Tafla 2.19.1.
SKÖTUSELUR. Tillögur Hafrannsóknastofnunar um aflahámark, heildaraflamark samkvæmt ákvörðunum stjórnvalda og afli (tonn) fiskveiðiárin 2001/2002–2012/2013.

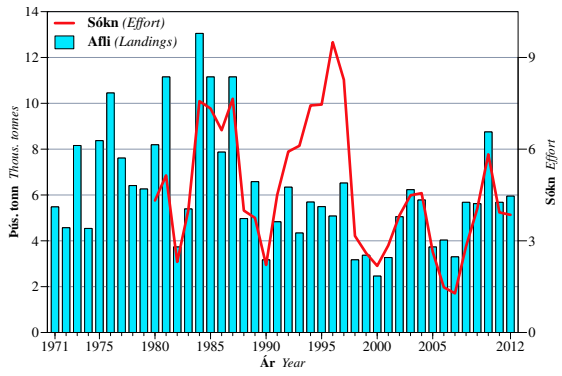
***ANGLERFISH**. TAC recommended by the Marine Research Institute, national TAC and landings (tonnes) in the quota years 2001/2002–2012/2013.*

Fiskveiðiár *Quota year*	Tillaga *Recommended TAC*	Aflamark *National TAC*	Afli *Landings*
2001/02	-	1 500	1 001
2002/03	Óbreytt sókn	1 500	1 363
2003/04	1 500	2 000	1 903
2004/05	1 500	2 000	2 420
2005/06	2 200	3 000	2 832
2006/07	2 200	3 000	2 672
2007/08	2 200	2 500	2 962
2008/09	2 500	3 000	3 436
2009/10	2 500	3 200	3 598
2010/11	2 500	3 000	3 376
2011/12	2 500	2 850	3 006
2012/13	1 500	1 800	

2.20. LUMPFISH *Cyclopterus lumpus*

2.20.1. Landings and effort

In 2012 almost 6 000 tonnes of lumpfish were landed from Icelandic waters, rather less than average landings from 1971–2011, which is 6 100 tonnes. Considerable variation has occurred in lumpfish landings over the last decade (figure 2.20.1 and table 3.20.1). Landings reached a peak of about 13 thous. tonnes in 1984, and were smallest in 2000 at about 2 500 tonnes. The prime season is from March–May and effort targets sexually mature female lumpfish.



Mynd 2.20.1. **HROGNKELSI**. Heildarafli grásleppu (þús. tonna) árin 1971–2012 og sókn 1980–2012.

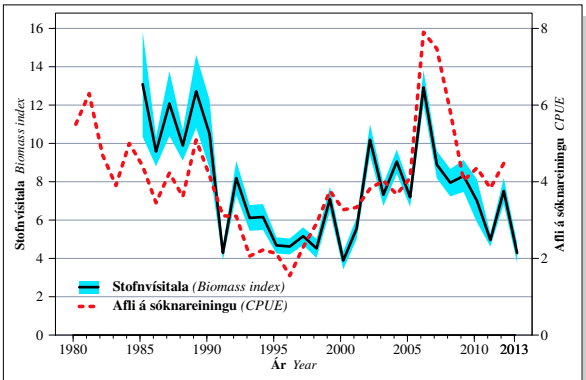
Fig. 2.20.1. ***LUMPFISH****. Total landings (thous. tonnes) of females 1971–2012 and effort* 1980–2012.

Fishing is controlled by effort management taking into account the following: number of permits, season length and number and size of nets. In 2011 and 2012 permits were allocated for 50 consecutive days, but in 2013 the season was shortened to 32 days. This type of management means that in addition to the condition of the stock, the weather has a strong effect on fishing success. Furthermore, the state of the roe market can have a strong effect on the effort. Therefore, variation in CPUE can be considerable between years (table 3.20.2 and figure 2.20.2).

Data from fishing logs, which along with landing data give insight into effort, date back to 1980. Effort (found by dividing total landings by mean CPUE) reached a peak between 1994 and 1997 but was at a minimum in 2007 (figure 2.20.1 and table 3.20.2).

2.20.2. Stock survey

The estimation of trends in stock biomass is conducted using SMB data. Although lumpfish are considered to be pelagic many are caught in bottom trawls. Many more lumpfish are caught during the day than at night and most are sexually mature fish that are on their way to the spawning grounds. The same general trend is seen in biomass indices and CPUE during the female lumpfish season (figure 2.20.2).



Mynd 2.20.2. **HROGNKELSI**. Stofnvísitala grásleppu (í þyngd) samkvæmt stofnmælingu botnfiska árin 1985–2013 og afli á sóknareiningu árin 1980–2012. Skyggða svæðið sýnir eitt staðalfrávik í mati vísitölunnar.

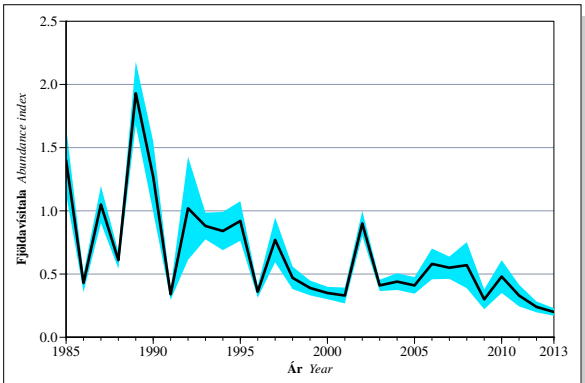
Fig. 2.20.2. ***LUMPFISH****. Biomass index of females from annual groundfish survey 1985–2013 and CPUE in female fishery 1980–2012. The shaded area shows one standard deviation of the index.*

2.20.3. Stock status

Female lumpfish biomass has decreased fairly continuously since 2006 and male lumpfish biomass is at an historical low in 2013 for the second consecutive year (figure 2.20.3). The harvest rate index (see Appendix 5.1) increased from 2006 and was near the historical peak from 2010–2011 before decreasing somewhat in 2012 to the average of the years 1985–2011 (figure 2.20.4).

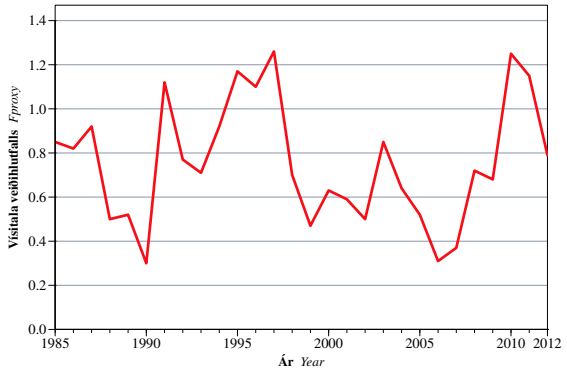
2.20.4. Assumptions in recommendations

Recommendations from the Marine Research Institute (MRI) aim to keep the harvest rate index below 0.75, which is the average from the period 1985-2011. Lumpfish are considered to be a rather



Mynd 2.20.3. **HROGNKELSI**. Stofnvísitala rauðmaga (í fjölda) samkvæmt stofnmælingu botnfiska árin 1985–2013. Skyggða svæðið sýnir eitt staðalfrávik í mati vísitölunnar.

Fig. 2.20.3. ***LUMPFISH****.* Abundance index of males from annual groundfish survey 1985–2013. The shaded area shows one standard deviation of the index.



Mynd 2.20.4. **HROGNKELSI**. Vísitala veiðihlutfalls grásleppu (afli/vísitölu) árin 1985–2012.

Fig. 2.20.4. ***LUMPFISH***. Relative fishing mortality (landings/biomass index, or F_{proxy}) for females 1985–2012.

short-lived species and they usually spawn only once. Thus, it is important that annual catches be based on biomass from the same year, rather than from the year before. With these considerations in mind, MRI proposes a temporary recommendation for fishing next year and the final recommendation will be given after data from the next survey are available, no later than April 1, 2014. So, the final recommendation will be given in the first half of the fishing season.

A temporary recommendation for fishing in the next year is calculated as the current year's biomass index multiplied by 0.225. The final recommendation that comes next year will be based on that year's biomass index multiplied by 0.525 which will then be added to the temporary recommendation. The current biomass index is therefore given a value of 30% and that of next year 70% when they are used as a basis for recommendations. From this, one can see that if the biomass index changes little from one year to the next the final recommendation then leads toward Fproxy = 0.75, as is the aim. By incorporating two surveys, there are smaller fluctuations in recommendations due to the uncertainty in the measurements.

These recommendations also aim to keep the female lumpfish biomass above the historical minimum. If this index falls below the lowest historical point (that from the year 2000) then it has a value of 0 in calculation of TAC. The final advice in that case would be based solely on biomass indices that are above this minimum multiplied by the above factor.

In accordance with the described recommendation rule, MRI recommended a preliminary TAC of 1 700 tonnes for the current season in June, 2012. The final TAC of 4 000 tonnes for quota year 2012/2013 was announced on 22. Mars, 2013.

2.20.5. Recommendations for quota year 2013/2014

Lumpfish harvesting has been managed by limits on the length of the season, the number of nets allowed per boat and the number of permits. Although this has been fairly successful as a management strategy, there have been a few things that cause concern. They are the decrease in female lumpfish biomass index in recent years, increases in harvest rate index and low male lumpfish biomass. Furthermore, the collection and recording of data from lumpfish harvesting has been somewhat inaccurate compared to other fisheries in Icelandic waters. For these reasons, it is clear that a more defined fishing management policy is needed.
With all this under cnsideration, MRI recommends a TAC for female lumpfish in quota year 2013/2014 of not more than 970 tonnes, which means 2 000 barrels of salted roe, based on the female lumpfish biomass index from the SMB in 2013. MRI will provide a final TAC recommendation for the current quota year upon completion of the SMB in March, 2014, following the method laid out in chapter 2.20.4.

Furthermore, the MRI recommends that more emphasis be put on recording and monitoring of male lumpfish catches and lumpfish taken as bycatch in other fisheries.

2.21. HERRING *Clupea harengus*

2.21.1. Summer spawning herring

Herring landings from 1978 until quota year 2012/2013 is shown in figure 2.21.1 and landings since 1951 are in table 3.21.1. Table 2.21.1 shows MRI recommended TAC, national TAC and landings since quota year 1990/1991.

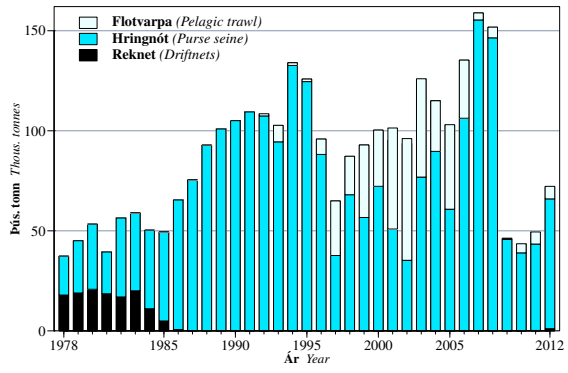
Landings of summer spawning herring in the 2012/2013 season and bycatch in mackerel fishing in the summer of 2012 were about 72 thous. tonnes. In the spring of 2012 MRI recommended a 67 thous. ton TAC, but the national TAC was 64 thous. tonnes in addition to the 4 500 tonnes allocated for bycatch in the mackerel fishery in the summer of 2012.

Herring fishing began after mid-October in Breiðafjörður and stopped in November. Most of the catch came from Grundarfjörður but some came from Kiðeyjarsund in Breiðafjörður as in the five years previous. Only about 6 000 tonnes were caught outside Breiðafjörður, mostly as bycatch in the summer fisheries for Norwegian-Icelandic herring and mackerel. For the second time since 1986 drift nets were used to catch adult herring. These nets landed 800 tonnes from Breiðafjörður.

2.21.1.1. Age disaggregation and mean weight at age in landings

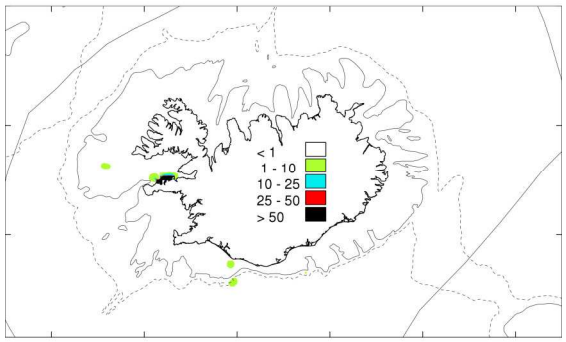
Landing in numbers by age are shown in table 3.21.2. The 2008 cohort was the largest proportion (18%) of biomass and cohorts from 2003–2007 were between 9–13% of landed biomass.

Table 3.21.3 shows mean weight at age in landings. Mean weight at age in landings was high in all ages last season, so similar to that of the last eight seasons except 2007/2008. Table 3.21.4 shows proportion mature and natural mortality since 1987. The high natural mortality index from 2009–2010 was due to an *Ichthyophonus* epidemic in the stock.



Mynd 2.21.1. SÍLD. Heildarafli (þús. tonna) skipt eftir veiðarfærum síðan 1978 (afli fiskveiðiárs frá 1991).

Fig. 2.21.1. HERRING. Total landings by gear type (thous. tonnes) since 1978 (quota year since 1991).



SÍLD. Veiðisvæði við Ísland fiskveiðiárið 2012/2013. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

HERRING. Fishing grounds in fishing season 2012/2013. All gears combined. Dark areas indicate highest catch (tonnes/nmi^2).

In the following years the infection was still prevalent, but as is later described is not thought to have significantly increased natural mortality in those years. In estimation of the spawning stock biomass, the same proportion mature was used for the entire period because the available data were not reliable as a basis for such an estimate.

2.21.1.2. Acoustic surveys

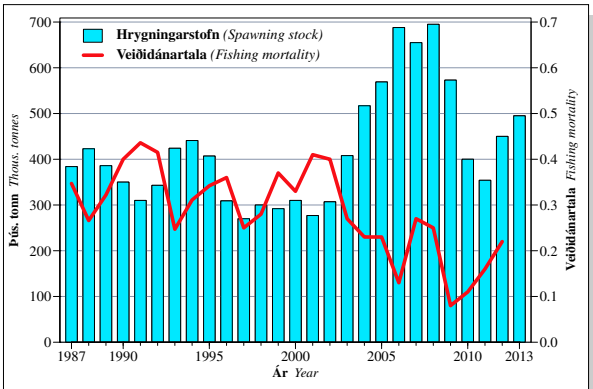
Since 1973 Icelandic summer spawning herring stock has been measured with acoustic methods. These measurements have usually been conducted in November–December and/or in January, at the close of the season. In 2012/2013 measurement was conducted in October outside Breiðafjörður and in October, November and December in Breiðafjörður. Measurements from December were considered to best describe the stock status in Breiðafjörður and were used with measurements from elsewhere. In all, about 428 thous. tonnes of adult herring were measured, of which 320 thous. tonnes were in Breiðafjörður. About 96% of the measured biomass was adult herring (>26 cm) and younger herring were mostly in Hornafjarðardjúp, Breiðamerkurdjúp and in Fjallasjór. Most of the two year and older herring were of the 2009 cohort which was 31% of the stock. The 2008 cohort was about 25% and other cohorts were each about 7% or lower.

Acoustic surveys were conducted within the fjords in the region from Breiðafjörður north to Öxarfjörður in October. In addition, the degree of infection was measured. Results of these measurements indicate that the 2011 cohort, then one year old, is small. This cohort was found at low biomass across the region and no infection was found in this cohort. Estimates of age 2 fish were unreliable.

The *Ichthyophonus* infection in older fish is slowly disappearing. So the infection proportion is still high in the 2004–2006 cohorts that have had the highest proportion (about 43%) in all years. However, herring age four and younger were practically free of infection in the fall of 2012 and about 25% of age 5 and older herring were infected. Mean infection proportion has decreased from 27% to 17% over the winter because of a higher proportion of younger, uninfected fish in the stock. The infection has now been in the stock for five years and has been well monitored. According to data collected about this infection, it seems to be killing less of the stock than in previous years. In previous years, this possibility has been discussed in status reports, but now enough data is available to support this conclusion.

2.21.1.3. Stock status and projections

Analysis of the summer spawning herring was done with two different stock assessment models that both have their basis in catch-at-age data and age distribution indices from acoustic surveys from 1987-2012. The results of the NFT-ADAPT analysis (see Appendix 5.1) were used as a basis for recommendations and projections, as in previous years. The reason for choosing this model is that there is high variation in the fishing pattern (harvest rate by age) but NFT-ADAPT takes into account variable fishing pattern.



Mynd 2.21.2. **Síld.** Stærð hrygningarstofns (þús. tonn) á hrygningartíma árin 1987 til 2013 og meðalveiðidánartala (F) 5–10 ára síldar 1987–2012.

*Fig. 2.21.2. **Herring.** Spawning stock biomass at spawning time during the period 1987 to 2013 (thous. tonnes) and weighted F_{5-10} 1987–2012.*

Spawning stock biomass was estimated at 541 thous. tonnes in the beginning of 2013 (figure 2.21.2 and table 3.21.5). About 10% of this, an estimated 52 thous. tonnes, died in Kolgrafafjörður in December and February due to insufficient oxygen. Spawning stock biomass in the 2013 spawning season is an estimated 495 thous. tonnes. Fishing mortality last season (2012/2013) was 0.22. According to the assessment, the spawning stock consists of the 2009 cohort (29%), 2008 cohort (about 32%), and 2002–2007 cohorts (2–9% each).

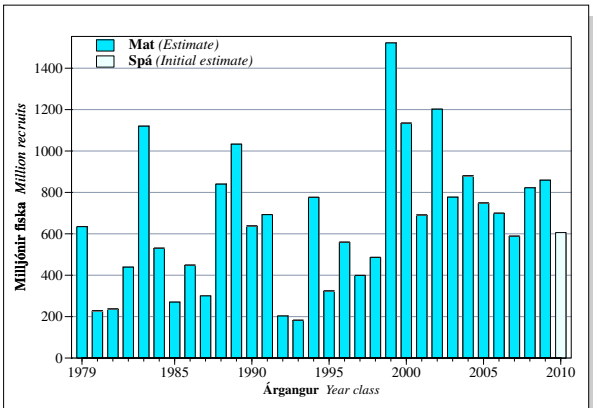
TAFLA 2.21.1.
Síld. Tillögur Hafrannsóknastofnunar um aflahámark, heildaraflamark samkvæmt ákvörðun stjórnvalda og afli (þús. tonn) 1990/1991–2012/2013.

Herring. TAC recommended by the Marine Research Institute, national TAC and landings in the quota years (thous. tonnes) 1990/1991–2012/2013.

Ár *Year*	Tillaga *Recommended TAC*	Aflamark *National TAC*	Afli *Landings (Iceland)*
1990/91	80	110	105
1991/92	80	110	109
1992/93	90	110	107
1993/94	90	100	103
1994/95	120	120	132
1995/96	110	110	126
1996/97	100	100	96
1997/98	100	100	64
1998/99	90	70[1)]	87
1999/00	100	100	93
2000/01	110	110	100
2001/02	125	125	95
2002/03	105	105	94
2003/04	110	110	126
2004/05	110	110	115
2005/06	110	110	103
2006/07	130	130	135
2007/08	130	150	159
2008/09	131	150	152
2009/10	40	47	46
2010/11	40	40	44
2011/12	40	45	49
2012/13	67	68.5	

[1)] Sjávarútvegsráðuneytið úthlutaði 70 þús. tonnum en samtals urðu veiðiheimildir um 90 þús. tonn þar sem 20 þús. tonn voru færð frá vertíðinni 1997/98. *TAC was decided 70 thous. tonnes but because of transfers from the previous quota year the national TAC became 90 thous. tonnes.*

As mentioned earlier, study results show that the mortality caused by the *Ichthyophonus* infection was less than previously thought. This year's stock assessment and projections take these results into consideration and sickness mortality is considered to have been significant only if the first two years. This is partly because since 2010, new infections in the stock seem to have been insignificant, despite a high infection proportion in the following years. Also, the progression of the sickness has been slow in the last three years compared to the first two years during



Mynd 2.21.3. **Síld.** Stærð síldarárganganna 1979–2010 sem fjöldi við þriggja ára aldur (í milljónum).

*Fig. 2.21.3. **Herring.** Abundance of year classes 1979–2010 at age 3 (numbers in millions).*

TAFLA 2.21.2.
SÍLD. Áhrif mismunandi aflamarks á áætlaða stærð hrygningarstofns (þús. tonn) árið 2014.
HERRING. *Projection of spawning stock biomass (thous. tonnes) in 2014 for different management strategies.*

2013			2014			
$F^{1)}$	Afli *Catch*	Hrygn. stofn *SSB*	Aflamark *TAC*	$F^{1)}$	Hrygn. stofn *SSB*	Stofn 3+ B_{3+}
0.22	72	495	70	0.17	513	581
			80	0.20	504	571
			87	0.22	497	564
			90	0.23	494	561

[1)] Vegin dánartala (F) fyrir 5–10 ára. F við kjörsókn=0.22.
Weighted fishing mortality (F) of age groups 5–10. $F_k=F_{0.1}=0.22$.

which it developed from weak in the fall to pervasive in the winter. This means that resistance increased in the stock, probably because fish with lower resistance died during the first years of infection and other fish did not. These changed assumptions in stock assessment have little effect on the estimation of stock size in the assessment year. The main difference is that the estimates of historical stock sizes are lower.

There has long been a tendency to overestimate the size of herring stocks and to underestimate fishing mortality, but in the last five years the opposite seems to be the truth and stock sizes have been underestimated. According to the current assessment, quota years 2005/2006 until 2006/2007 and 2009/2010 until 2011/2012 were the only seasons since 1986 when fishing mortality was below optimum goals. Due to the precautious approach to management of the stock, it seems that systematic overestimation has not had a serious negative effect.

2.21.1.4. TAC recommendations for quota year 2013/2014

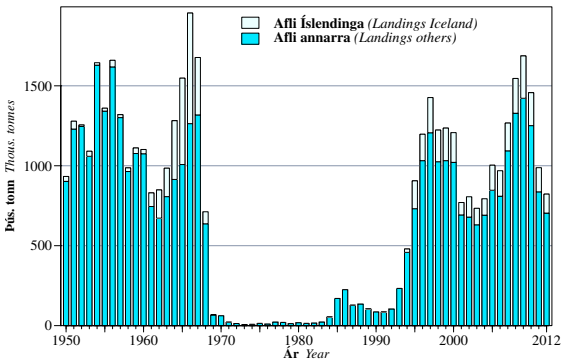
As has been stated, there is uncertainty in stock assessment, which manifested in previous years as a tendency to overestimate the stock but in recent years as a tendency to underestimate the stock. Although the proportion infected is still high in older herring, indications of a lower sickness mortality rate lead to less uncertainty in the stock assessment. In projections, further death due to sickness is unexpected. With these considerations, MRI recommends that landings target optimum effort (F=0.22) and total landings for quota year 2013/2014 be 87 thous. tonnes.

2.21.2. Norwegian-Icelandic spring spawning herring

Total and Icelandic landings from the Norwegian-Icelandic herring stock in the period 1950–2012 is shown in figure 2.21.4 and table 3.21.6. Harvesting of the stock starting in 2002 were limited such that fishing mortality would not exceed 0.125 according to a 2001 agreement between Norway, Russia, Iceland, the Faroes and the European Union. According to the agreement from 2007 Iceland's share is 14,51% of the total. For 2012 ICES recommended that landings stay under 833 thous. tonnes and Iceland's share was about 121 thous. tonnes.

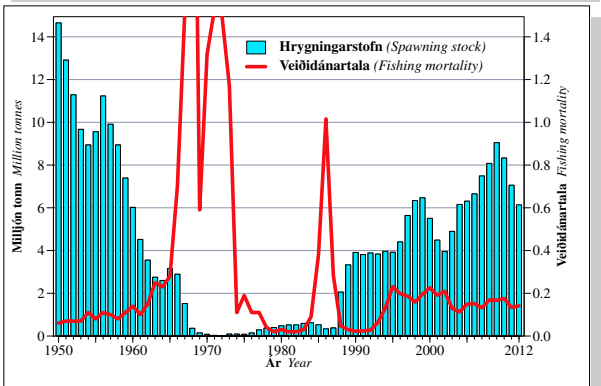
Icelandic landings in 2012 were about 121 thous. tonnes. The majority, 97 thous. tonnes, was caught within Icelandic water between June and November. In Faroese waters almost 24 thous. tonnes were caught and almost no herring in other waters.

According to the 2012 assessment spawning stock biomass was 6.1 million tonnes in 2012 (figure 2.21.5). Cohorts from 2002 and 2004 are still the majority (20% and 32%) of the spawning stock.



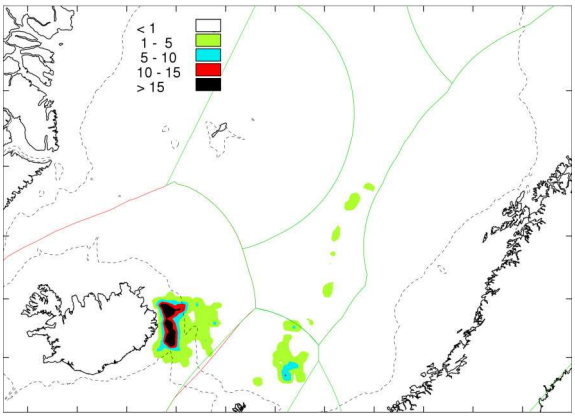
Mynd 2.21.4. NORSK-ÍSLENSK VORGOTSSÍLD. Heildarafli og afli Íslendinga (þús. tonna) árin 1950–2012.

Fig. 2.21.4. NORWEGIAN SPRING-SPAWNING HERRING. Total landings (thous. tonnes) and Icelandic landings since 1950.



Mynd 2.21.5. NORSK-ÍSLENSK VORGOTSSÍLD. Stærð hrygningarstofns í milljónum tonna árin 1950–2012 og vegin meðalveiðidánartala (F) 5–14 ára síldar 1950–2011.

Fig. 2.21.5. NORWEGIAN SPRING-SPAWNING HERRING. Spawning stock size (million tonnes) since 1950 and weighted mean $F_{5\text{-}14}$ 1950–2011.

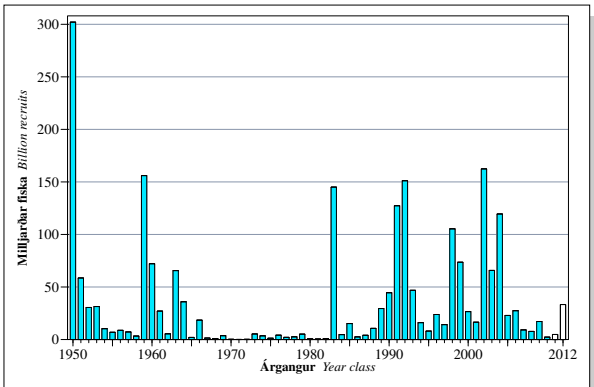


NORSK-ÍSLENSK VORGOTSSÍLD. Veiðisvæði íslenskra skipa árið 2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

NORWEGIAN SPRING-SPAWNING HERRING. Fishing grounds of the Icelandic fleet in 2012. Dark areas indicate highest catch (tonnes (nmi^2).

Cohorts from 2004 and later are small (figure 2.21.6) so the spawning stock is expected to decrease in coming years despite a precautionary harvest rule. ICES has recommended a TAC of 619 thous. tonnes in 2013 which is in accordance with the long-term management of fishing from the Norwegian-Icelandic stock. Icelandic vessels were allotted nearly 90 thous. tonnes in accordance with the 2007 international agreement which maintained traditional shares despite the Faroese refusal to renew the agreement in the fall of 2012 on the grounds of dissatisfaction about the division of shares.

Since the ICES pelagic fisheries work group convenes in the fall, a new stock biomass estimate and TAC recommendation for 2014 will not be ready until October, 2013.



Mynd 2.21.6. NORSK-ÍSLENSK VORGOTSSÍLD. Stærð árganga frá 1950–2012 sem fjöldi við eins árs aldur (milljarðar).

Fig. 2.21.6. NORWEGIAN SPRING-SPAWNING HERRING. Abundance for year classes 1950–2012 at age 1 (numbers in billions).

2.22. CAPELIN *Mallotus villosus*

2.22.1. landings and effort

In October, 2012, upon completion of the fall capelin survey, a preliminary TAC of 300 thous. tonnes was adopted. In the beginning of February, 2013 government, following MRI recommendations based on the winter survey, adopted a TAC of 570 thous. tonnes for quota year 2012/2013.

Total landings after the season, which lasts from June–April, and capelin landings in the region of Iceland/Greenland/Jan Mayen are shown in table 2.22.1 and figure 2.22.1.

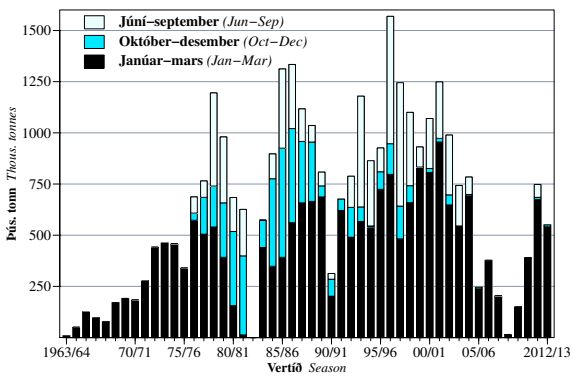
There was no summer season in 2012. Fall fishing began in November, resulting in landings of 10 thous. tonnes before the end of the year and for the previous 14 years no such fall season had occurred (mynd 3.22.1).

The winter season began in January, 2013. Vessels fished off the northeast and east coasts and capelin landings totalled 138 thous. tonnes in Januray. In the second week of february, the capelin came in to Mýrarbugt and the run had reached Faxaflói and Breiðafjörður by the end of February. In total 243 thous. tonnes were landed in February and 160 thous. tonnes in March. Fishing stopped in mid-March and winter landings for 2013 were 541 ous. tonnes. Total landings for the season 2012/2013 were 551 thous. tonnes (table 3.22.1).

In the 2012/2013 season the 2010 cohort was about 52% of catch by number in summer and the fall seasons (table 3.22.2) and about 54% of catch by number in the winter season (table 3.22.3). The 2009 cohort was more prevelent than usual age 4 cohorts, representing about 44% of catch by number during the winter season.

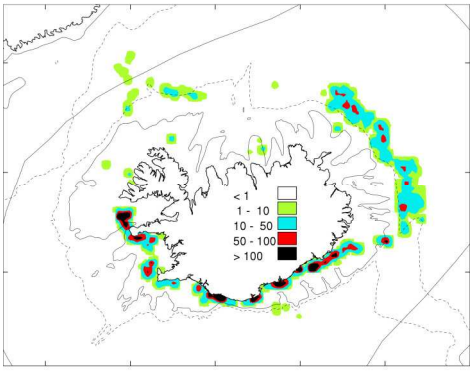
2.22.2. Acoustic surveys

Since about 1980 annual acoustic surveys have been conducted to study the distribution and biomass of capelin. Young capelin surveys have been conducted from October–December. Results of these surveys have been used in recommendation of preliminary TAC. Adult capelin surveys (fishable stock) are usually conducted in January and February. These surveys are aimed at determining fishable stock biomass and a final TAC for the current season.



Mynd 2.22.1. LOÐNA. Heildarafli og skipting afla á sumar, haust og vetur, vertíðarnar 1963/1964–2012/2013.

Fig. 2.22.1. CAPELIN. Total landings and partitioning of the landings taken in summer, autumn and winter in the 1963/1964–2012/2013 fishing seasons.

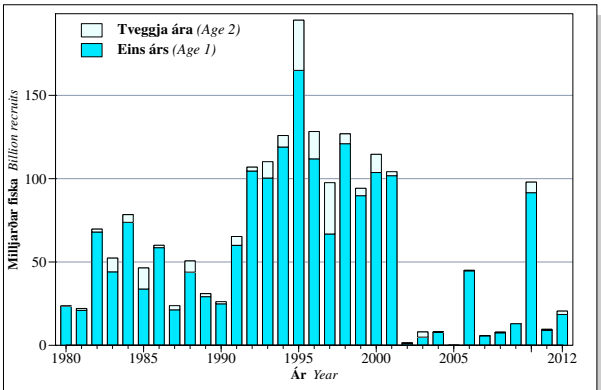


LOÐNA. Veiðisvæði við Ísland vertíðina 2012/2013 Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

CAPELIN. Fishing grounds in 2012/2013 fishing season. Dark areas indicate highest catch (tonnes/nmi^2).

TAFLA 2.22.1.
LOÐNA. Endanlegar tillögur Hafrannsóknastofnunar um aflahámark, heildaraflamark samkvæmt ákvörðunum stjórnvalda og afli (þús. tonn) 1984/1985–2012/2013.
CAPELIN. TAC recommended by the Marine Research Institute, national TAC and landings (thous. tonnes) 1984/1985–2012/2013.

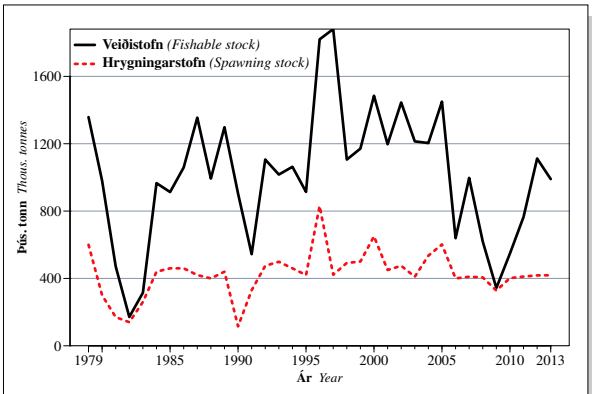
Vertíðir *Seasons*	Tillaga *Rec. TAC*	Aflamark *TAC*	Afli Íslendinga *Landings (Iceland)*	Afli annarra *Landings (others)*	Afli alls *Total landings*
1984/85	920	920	774	123	897
1985/86	1 280	1 280	987	325	1 312
1986/87	1 290	1 290	1 053	380	1 333
1987/88	1 115	1 115	912	204	1 116
1988/89	1 065	1 065	921	116	1 037
1989/90	900	900	666	142	808
1990/91	250	312	284	27	311
1991/92	740	740	635	47	682
1992/93	900	900	655	95	793
1993/94	1 250	1 250	1 001	178	1 179
1994/95	850	850	750	114	864
1995/96	1 150	1 150	883	46	929
1996/97	1 600	1 600	1 249	322	1 571
1997/98	1 265	1 265	940	260	1 245
1998/99	1 200	1 200	899	201	1 100
1999/00	1 000	1 000	844	90	934
2000/01	1 110	1 110	894	177	1 071
2001/02	1 300	1 300	1 051	198	1 249
2002/03	1 000	1 000	765	223	988
2003/04	875	875	575	167	742
2004/05	985	985	640	144	784
2005/06	215	238	193	45	238
2006/07	370	385	307	70	377
2007/08	207	207	149	54	203
2008/09	0	15	15	0	15
2009/10	150	150	111	40	151
2010/11	390	390	322	68	390
2011/12	765	765	585	162	747
2012/13	570	570	464	87	551



Mynd 2.22.2. **LOÐNA**. Mældur fjöldi ókynþroska 1 og 2 ára loðnu að hausti árin 1980–2012.

*Fig. 2.22.2. **CAPELIN**. Acoustic measurements of immature age 1 and 2 capelin in autumn 1980–2012.*

The fall acoustic survey in 2012 ran from 3.–20. October. There was no sea ice and conditions were excellent for the survey. Young capelin indices were so low (figure 2.22.2 and table 3.22.6) that a preliminary TAC recommendation was impossible for the 2013/2014 season. However, the fishable stock was measured at 800 thous. tonnes Which was the basis for the MRI TAC recommendation of 300 thous. tonnes for quota year 2012/2013.



Mynd 2.22.3. **LOÐNA**. Stærð veiðistofns 1. janúar og stærð hrygningarstofns (þús. tonna) á hrygningartíma á vertíðunum 1978/79–2012/13.

*Fig. 2.22.3. **CAPELIN**. Abundance of the fishable stock 1 January in the 1978/79–2012/13 fishing seasons and the remaining spawning stock biomass at the end of each season (thous. tonnes).*

In early January, 2013 an organized search for capelin was carried out through a collaboration between research and fishing vessels. Following the search, the run was measured by r/s Árni Friðriksson 4–15. January. Capelin were found outside the shelf from the Denmark Strait in the west to Langanesgrunn in the east. In the Denmark Strait the capelin were mixed immature fish. In all almost 320 thous. tonnes of spawning capelin were measured, which was well below expectations. From 21. January–7. February the run was measured again from Norðfjarðardjúp west to the Denmark Strait. West of Kolbeinseyjar ridge the capelin were in some places immature fish and to the west in the cold waters of the Denmark Strait there was nothing but immature fish. In all more than 870 thous. tonnes of spawning capelin were measured. Including the capelin that were landed before the surveys began, the spawning stock at the beginning of 2013 is estimated to be about 980 thous. tonnes. On the basis of these measurements and the harvest rule of maintaining at spawning stock of least 400 thous. tonnes MRI recommended a TAC of 570 thous. tonnes for quota year 2012/2013.

Table 3.22.5 shows stock size in number and biomass, by both age and maturity. Since landings have not reached the recommended TAC it is estimated that about 417 thous. tonnes spawned in the spring of 2013 (figure2.22.3).

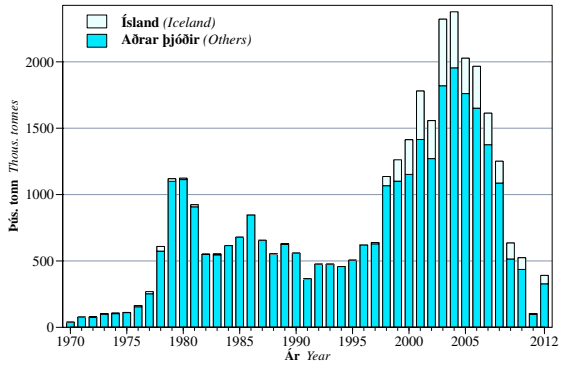
2.22.3. Recommendations

The capelin season 2013/2014 should consist mostly of cohorts from 2011 and 2010. Since very little immature capelin were measured in 2012 (figure 2.22.2 and table 3.22.6) there is no basis for a preliminary TAC for the 2013/2014 season. MRI recommends that capelin not be fished until the stock has been successfully measured and results indicate that the stock will not be harmed by fishing considering the protected 400 thous. ton spawning stock harvest rule.

2.23. BLUE WHITING *Micromesistius poutassou*

2.23.1. Landings and age distribution

Blue whiting landings in the Northeast Atlantic since 1970 are shown in figure 2.23.1 and table 3.23.1. From 1970–1981 landings increased from 40 thous. tonnes to about 1,1 million tonnes, then decreased and held stable in the period 1982–1997 at between 400 and 700 thous. tonnes. They increased again from 1998, reaching a climax of 2.4 million tonnes in 2004. Subsequently they decreased until 2011 when about 104 thous. tonnes were landed. In 2012 landings were estimated at 400 thous. tonnes.



Mynd 2.23.1. KOLMUNNI. Heildarafli (þús. tonna) í NA-Atlantshafi árin 1970–2012.

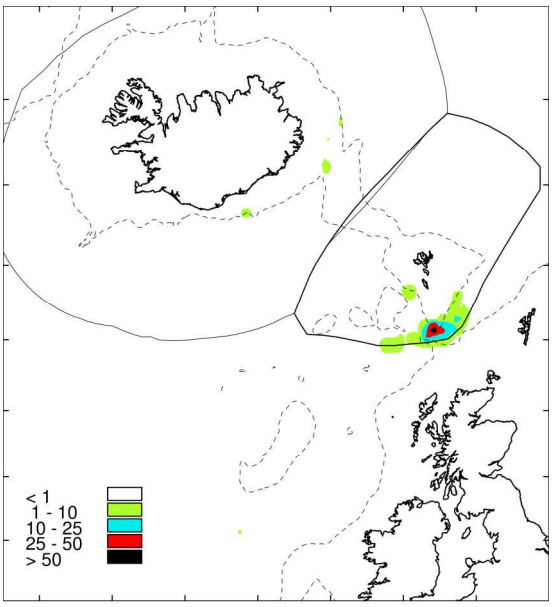
Fig. 2.23.1. BLUE WHITING. Total landings (thous. tonnes) 1970–2012 from the NE Atlantic Ocean.

Icelandic landings grew rapidly from 1997–2003, from about 10 thous. tonnes to over 500 thous. tonnes, then decreased rapidly to 6 thous. tonnes in 2011. In 2012 Icelanders landed about 63 thous. tonnes. From 1997–2005 about 61% of landings were caught in Icelandic waters, but in 2006–2012 only about 18% was from Icelandic waters with the rest coming from Faroese waters and international waters west of the British Isles.

Catch-at-age data from 2012 are not available, but in landings from 2011 cohorts from 2005–2006 were about 30% of the total. Also in the catch were age 1 fish (21%), age 2 fish (about 13%) and remainders of the large cohorts from 2001–2003 (in total 12%).

2.23.2. Stock status

Every October ICES conducts a blue whiting survey. The newest estimate of stock size is from October, 2012. According to this estimate, spawning stock grew from about 2.2 million tonnes in 1996 to about 7.1 million tonnes in 2003 (figure 2.23.2) when the large cohorts from 1995–2002 joined the stock. There was a rapid decrease from 2003–2009 and the stock remained near 2.8 million tonnes from 2009–2011. This is a decrease of about 60% during

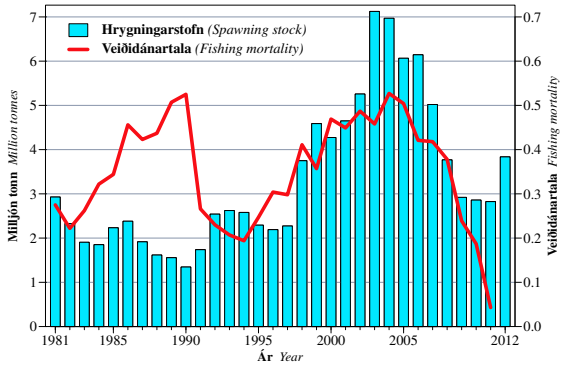


KOLMUNNI. Veiðisvæði íslenskra skipa árið 2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

BLUE WHITING. Fishing grounds of the Icelandic fleet in 2012. Dark areas indicate highest catch (tonnes/nmi^2).

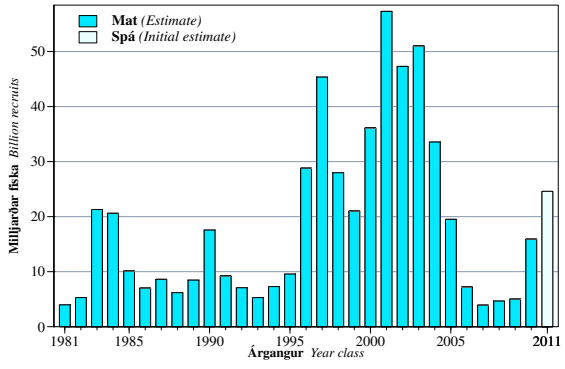
the period 2003–2011. The estimated spawning stock biomass in 2012 is about 3.8 million tonnes. This increase in spawning stock is the result of decreased effort in 2011 and improved recruitment from 2010–2011. Figure 2.23.2 shows the mean fishing mortality for age 3–7 blue whiting which decreased from 0.53 in 2004 to about 0.18 in 2010 and was only 0.04 in 2011.

The number of age one recruits in 1981–2010 is shown in figure 2.23.3. Small cohorts from 2006–2009 have led to shrinkage of the spawning stock. However, cohorts from 2010 and 2011 are well above average so the stock is growing again.



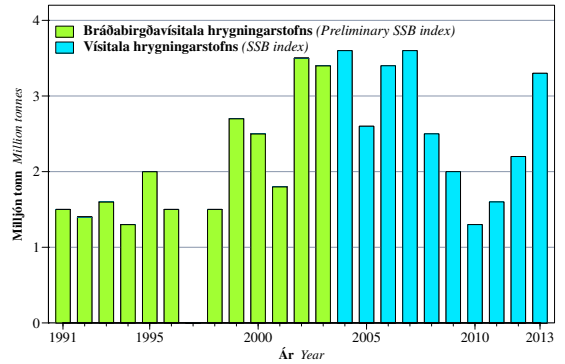
Mynd 2.23.2. KOLMUNNI. Stærð hrygningarstofns 1981–2012 og meðalveiðidánartala (F) 3–7 ára kolmunna 1981–2011.

Fig. 2.23.2. BLUE WHITING. Spawning stock biomass 1981–2012 and mean F_{3-7} during 1981–2011.



Mynd 2.23.3. **KOLMUNNI**. Mat á stærð árganga 1980–2011 við eins árs aldur (í milljörðum).

*Fig. 2.23.3. **BLUE WHITING**. Size of the 1980–2011 year classes. Number of recruits at age 1 (in billions).*



Mynd 2.23.4. **KOLMUNNI.** Niðurstöður bergmálsmælinga (endurskoðaðar vísitölur í þyngd) á stærð hrygningarstofns kolmunna 1991–2013. Vísitölur frá 2004–2012 eru reiknaðar með nýjum endurvarpsstuðli kolmunna en fyrir 2004 eru vísitölurnar endurskoðaðar til bráðabirgða.

*Fig. 2.23.4. **BLUE WHITING**. Acoustic biomass index at the spawning grounds. The indices from 2004–2013 are calculated with a new estimate of the target strength of blue whiting, but prior to 2004 the indices are preliminary.*

Norway and Russia have measured the spawning stocks west of the British Isles and in Faroese waters annually in March–April since 1983. Since 2004 These surveys have been conducted through international collaboration. Biomass indices are based on the reflection coefficient of blue whiting that was reviewed and revised by ICES in 2011. A review of indices dating before 2004 is ongoing. Results show that spawning stock biomass indices have ranged between 1.3–3.6 million tonnes from 2004–2013 (figure 2.23.4). Spawning stock biomass indices calculated with the new reflection coefficient are usually about 32% of the old value. Furthermore, the indices so calculated are nearer the annual estimate of spawning stock biomass. The newest acoustic survey from March, 2013 shows a 52% increase in the spawning stock biomass from the previous year that makes the biomass similar to that of the years 2002–2007.

2.23.3. Projections and TAC recommendations for 2014

Due to heavy fishing pressure until 2008 and poor recruitment from 2005–2008, the spawning stock decreased rapidly. It is now recovering because of improved recruitment in 2010–2011. ICES has recommended a TAC of 643 thous. tonnes of blue whiting in 2013. This is equal to a fishing mortality of 0.18 and is in accordance with a precautionary approach and the international agreement between Iceland, Norway, the Faroe Islands, Russia and the European Union. The Icelandic share of landings in 2013 is about 113 thous. tonnes.

A recommendation from ICES for 2014 will be prepared in October, 2013 after the fall meeting of the advisory board.

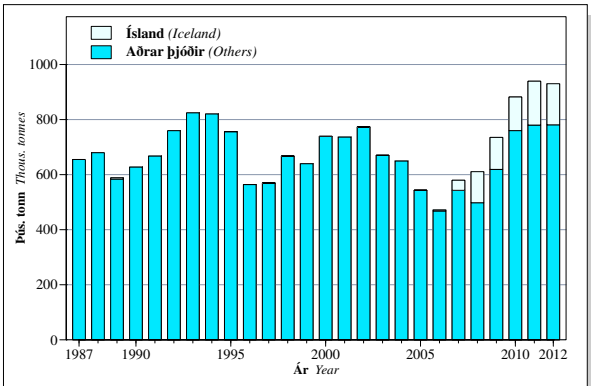
2.24. MACKEREL *Scomber scombrus*

2.24.1. Landings, effort and age distribution

Trends in landings of mackerel from the Northeast Atlantic since 1987 are shown in figure 2.24.1 and table 3.24.1. Considerable increases have occurred in landings in the last seven years and landings in 2012 are expected to be about 930 thous. tonnes.

The main fishing grounds for mackerel for the last decade have been the North Sea and around the British Isles. In this region fishing is mostly from fall to spring.

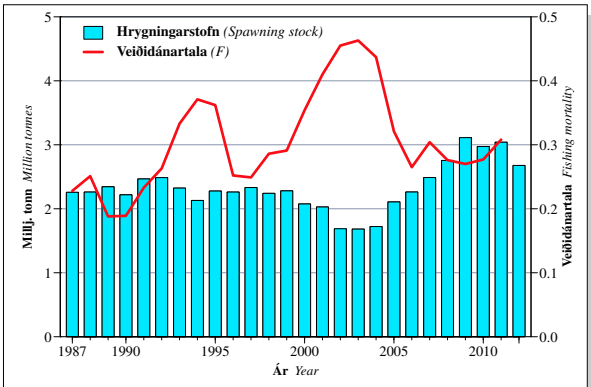
In recent years, mackerel has entered Icelandic waters increasingly during summer and into fall.



Mynd 2.24.1. **MAKRÍLL**. Heildarafli (þús. tonna) árin 1987–2012.

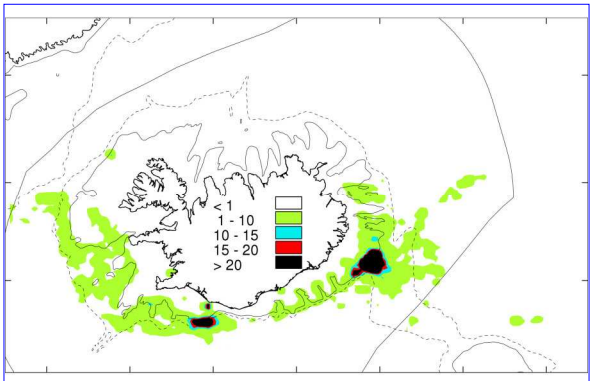
Fig. 2.24.1. ***MACKEREL****. Total landings (thous. tonnes) 1987–2012 from the NE Atlantic.*

This increase is thought to be caused by ocean warming and less availability of krill in traditional feeding grounds. In 2006 mackerel started to come in as bycatch in the herring fishery in pelagic trawls off the east coast and in that year about 4 000 tonnes were landed. Direct targeting began in 2007 when 37 thous. tonnes were landed. From 2008 until 2011 landings increased from 113 to 159 thous. tonnes and



Mynd 2.24.2. **MAKRÍLL**. Stærð hrygningarstofns 1987–2012 og veiðidánartala (F) 4–8 ára makríls 1987–2011.

Fig. 2.24.2. ***MACKEREL****. Spawning stock biomass 1987–2012 and mean F_{4-8} during the period 1987–2011.*



MAKRÍLL. Veiðisvæði íslenskra skipa árið 2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

MACKEREL. *Fishing grounds of the Icelandic fleet in 2012. Dark areas indicate highest catch (tonnes/nmi^2).*

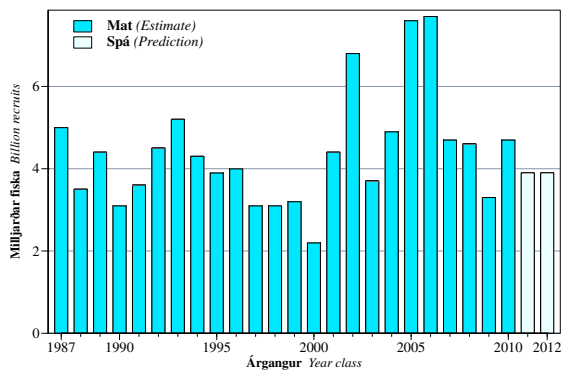
most of that was caught by direct effort. Icelandic landings in 2012 were about 149 thous. tonnes (figure 2.24.1 and table 3.24.1). The main fishing grounds in Icelandic waters are off the south and east coasts, but landings from the southwest and west increased in 2010 and even more so in 2011–2012. Only an insignificant amount of Icelandic landings of mackerel come from outside Icelandic waters.

Catch-at-age data from 2012 are not available but in 2011 the cohorts from 2005–2008 were most prevalent (16–22%) and together were 73% of the catch by number. The next most important cohorts were from 2009 and 2010 which were 7 and 8% of the catch by number.

2.24.2. Stock surveys

Since 1977 the amount of mackerel eggs has been estimated every third year in an international survey that spans the period from January through June. In 2010 Icelanders joined this survey for the first time. The MRI participated again this year and among other things studied the amount and distribution of mackerel eggs in Icelandic waters. The survey results show that the main spawning grounds of the mackerel is around the British Isles, but the spawning is taking place farther north than before and mackerel eggs were found in Icelandic waters in 2010. The results of this survey are used in the stock assessment.

In July/August of 2012 MRI participated in an international survey, for the fourth year in a row, the goals of which are to study the ecology, distribution and amount of pelagic fish around Iceland, the Faroes and in the Norwegian Sea. Since these studies have been conducted for only four years, they are not yet used in biomass estimation of mackerel stock. Work is ongoing to extend the study area south to cover the entire range of mackerel in the study period.



Mynd 2.24.3. **MAKRÍLL**. Mat á stærð árganga 1987–2012 (í milljörðum).

Fig. 2.24.3. ***MACKEREL****. Size of the 1987–2012 year classes at age 0 (in billions).*

2.24.3. Stock status and recommendations

Assessment of mackerel stocks by ICES is conducted in the fall. According to the last assessment in the fall of 2012, the spawning stock increased from 1.7 million tonnes in 2003 to 3.1 million tonnes in 2009 but has decreased since (figure 2.24.2). The spawning stock was estimated at 2.7 million tonnes in 2012 and estimated at 2.6 million tonnes during the spawning season in 2013.

Fishing mortalities from 1987–2011 are shown in figure 2.24.2. After a big increase in 1998–2003 fishing mortality has decreased, but it is still much higher than recommended (0.2–0.22).

All cohorts from 2001–2010 except 2003 and 2009 are larger than the average from 1972–2009 (figure 2.24.3). There are some uncertainties in the assessment, including the size of younger cohorts. There are indications that annual landings over the years have been much greater than reported, which leads to underestimation of stock size in the catch-at-age models.

TAFLA 2.24.1.
MAKRÍLL. Tillögur Alþjóðahafrannsóknaráðsins um aflahámark, heildaraflamark samkvæmt ákvörðunum stjórnvalda og afli allra veiðiþjóða (þús. tonna) 1998–2013.
MACKEREL. *TAC recommended by ICES, sum of national TAC and landings (thous. tonnes) 1998–2013.*

Ár *Year*	Tillaga *Rec. TAC*	Aflamark allra þjóða *Sum of national TAC*	Afli *Landings*
1998	498	549	667
1999	437	562	640
2000	642	612	739
2001	665	670	737
2002	694	683	773
2003	542	583	670
2004	545	532	650
2005	320–420	422	543
2006	373–487	444	473
2007	390–509	502	579
2008	349–456	458	611
2009	443–578	749[1)]	735
2010	527–572	885[1)]	869[2)]
2011	529–672	959[1)]	939[2)]
2012	586–639	927[1)]	930[2)]
2013	497–542		

[1)] Ekkert samkomulag. *No agreement.*
[2)] Með áætluðu brottkasti. *Including estimated discards.*

ICES recommended that the TAC for 2013 should be in the range 497–542 thous. tonnes which means a fishing mortality of 0.20–0.22 (table 2.24.1). With this level of effort, the spawning stock is predicted to be just under 2.6 million tons in 2014. This is in accordance with a precautionary approach. No agreement has been reached between the nations fishing this stock about the division of shares, and landings in recent years have been well above the recommended limits. The ICES advice for 2014 will be ready in October of 2013 when the annual meeting of the advisory committee is adjourned.

2.25. PEARLSIDE *Maurolicus muelleri*

2.25.1. Fishing and biology

Experimental fishing of pearlside with pelagic trawl began in December, 2008 resulting in a few tonnes being landed. Landings in 2009 were about 46 thous. tonnes, but have decreased since, totalling 9 thous. tonnes in 2011 and only 9 tonnes in 2012. In all 18 vessels landed pearlside in 2009 but in 2012 only one vessel fished the stock.

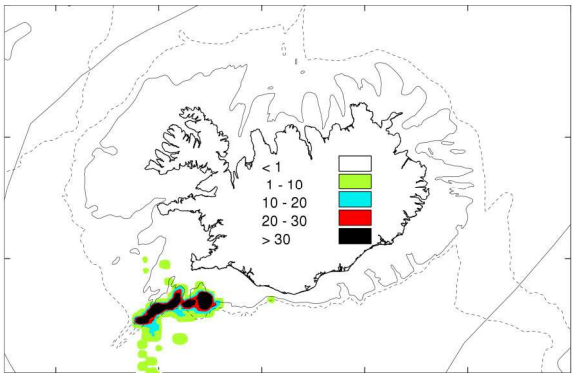
Pearlside is a very small fish of the family Sternoptychidae. It reaches maturity at the age of one year and is then about 2.5 cm in length; it can live to be 5 years old and reach a length of 9 cm. The range of pearlside in Icelandic waters is wide, reaching from waters off the west coast to the southeast coast. They spawn in the spring and summer in the northern portion of their range, of which the Icelandic range is part, but they spawn all year farther south.

Little is known about the distribution and biomass of pearlside, as is the case with other mesopelagic fish, but the northern distribution limit is thought to be marked by the reach of warm seawater. The northern limits in the Atlantic Ocean are therefore at Iceland and northern Norway. In the North Atlantic pearlside are found in the open ocean along with other mesopelagic fish like lanternfish (Myctophidae). Pearlside appears to mix with other mesopelagic fish in the Greenland Sea and in the Suðurdjúp in the summer. But little is known about the distribution of the species during the winter. It is likely that ocean currents have a strong effect on pearlside in the winter because of the small size of the fish.

2.25.2. Stock status

In 2010 the MRI sponsored a research cruise with the aim of mapping the distribution and biomass of pearlside in Icelandic waters with acoustic surveys. The institute expected that estimating biomass would be difficult because the reflection coefficient of pearlside was unknown.

The results of the cruise showed that pearlside is distributed from the west coast around the south coast to the eastern fjords. The highest biomass was found in the area where pearlside fishing boats were operating in and around Grindavíkurdjúp. In order to estimate the biomass of pearlside with desirable accuracy more research needs to be done to determine the reflection coefficient of the species; such studies have not been conducted in the Atlantic Ocean. Studies of the reflection coefficient of a related species in the Pacific Ocean have been completed. When that reflection coefficient is used to estimate the biomass of pea pearlside observed in the 2010 research cruise the calculated biomass is less than 250 thousand tonnes, thereof 140 tonnes in the fishing grounds. Length distributions in landings indicate that the majority of the stock is made up of two cohorts, the older found on the fishing grounds and the younger of the west coast. MRI has not, as yet, conducted further studies on the amount and distribution of pearlside in Icelandic waters.



NORRÆNA GULLDEPLA. Veiðisvæði við Ísland árið 2009-2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

***PEARLSIDE**. Fishing grounds in 2009-2012. Dark areas indicate highest catch (tonnes/nmi^2).*

2.25.3. TAC recommendations for quota year 2013/2014

Since the stock biomass and yield capacity of pearlside are little known, as well as the species' importance as a food source for other fished stocks, the MRI recommends a precautionary exploitation of the stock in that landings not exceed the average from 2009–2010 which is 30 thous. tonnes.

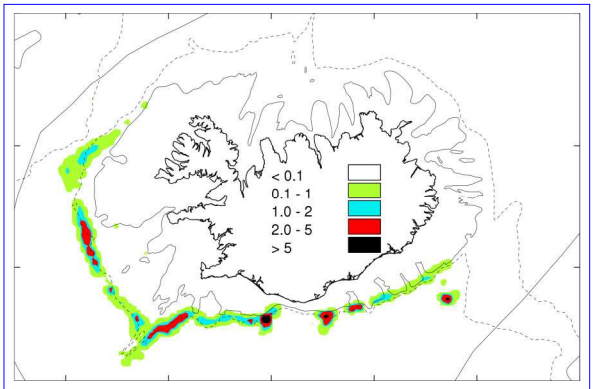
2.26. GREATER SILVER SMELT *Argentina silus*

2.26.1. Landings and effort

Greater silver smelt has been caught in bottom trawl in Icelandic waters for many years, especially as bycatch in the redfish fishery. In 1997 directed fishing of the species began and many vessels were allocated permits to fish with small mesh trawl. Landings increased from 800 tonnes in 1996 to over 13 thous. tonnes in 1998 (figure 2.26.1; table 3.26.1), but direct targeting was closed in July of that year. From 2000–2007 landings were from 2 500–4 800 tonnes. A large increased occurred from 2008–2010 and landings reached 16 thous. tonnes in 2010. In 2011 and 2012 landings decreased partly due to improved management and in 2012 about 9 300 tonnes were landed.

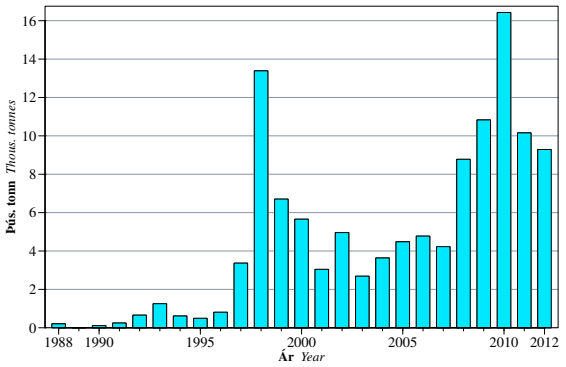
2.26.2. Stock status

Greater silver smelt is a slow-growing species and the potential yield is thought to be low. Data about the biomass and stock status are scarce as is understanding of the relationship between the Icelandic stock and those of surrounding waters.



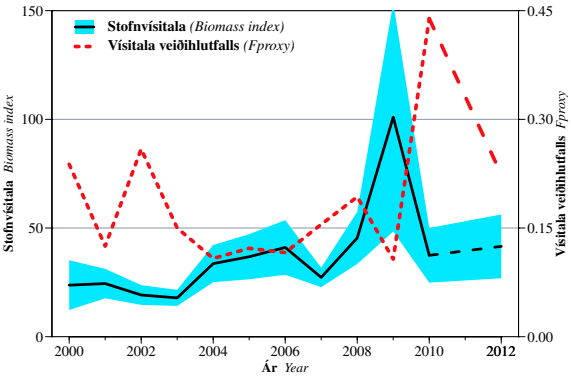
GULLLAX. Veiðisvæði við Ísland árið 2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

GREATER SILVER SMELT. Fishing grounds 2012. Dark areas indicate highest catch (tonnes/nmi^2).



Mynd 2.26.1. GULLLAX. Heildarafli (þús. tonna) á Íslandsmiðum árin 1988–2012.

Fig. 2.26.1. GREATER SILVER SMELT. Total landings from Icelandic waters during the period 1988–2012 (thous. tonnes).



Mynd 2.26.2. GULLLAX. Vísitiala veiðistofns (> 30cm og dýpi >400 m) í stofnmælingu í október og þróun í vísitölu veiðihlutfalls 2000–2012.

Fig. 2.26.2. GREATER SILVER SMELT. Index of fishable biomass (>30cm and depth >400 m) in annual groundfish survey in October and Fproxy (yield/index) in 2000–2012.

Greater silver smelt is widely observed in the autumn groundfish survey (SMH), though mostly from the warm seas off the southeast coast to the Westfjords. The behaviour of these fish causes uncertainty in indices, as they are often caught in large numbers in few hauls and they swim into upper layers so they are difficult to measure with bottom trawls. Since 2010 biomass indices from more than 400 m depth have been used as a basis for the advice. Last year, no new index was available due to a labour strike in 2011. The fishable stock biomass more than doubled between 2008 and 2009 before decreasing in 2010 to the level it was in 2008. Little change in the index occurred between 2010 and 2012.

2.26.3. Stock status

In recent years, emphasis has been placed on the collection of age-structured data from the stock. There has been considerable change in the age distribution in recent years. In 1998 the mean age in the catch was about 16 years, whereas in 2008–2010 the mean age was about 10 years. Since then, mean age in landings has increased and was 11.5 years in 2012.

In 2012, the MRI advice was mostly based on a Gadget model. The high variability in survey indices between years caused problems in model convergence. However, the model does follow the changes in age distribution; therefore it seems the model accurately describes stock trends in Icelandic waters. According to the model, the stock grew until 1998, but then decreased rapidly because of heavy fishing. After 2000 it grew again but is still somewhat below the biomass of 1998. The fishing mortality and has fluctuated greatly along with the

catches, but has been higher than the optimum ($F_{0.1}$=0.17) since 2007, despite a decrease in 2011 and 2012.

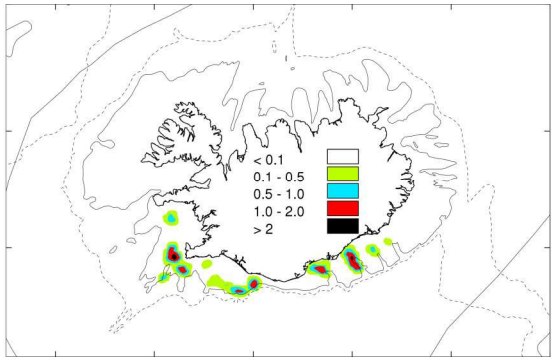
2.26.4. Advice for quota year 2013/2014

MRI recommends a TAC for the quota year 2013/2014 of not more than 8 000 tonnes. This recommendation is based on the fact of a small variation in fishable stock biomass between 2010 and 2012 but also because such effort would bring fishing mortality to near optimum ($F_{0.1}$=0.17). MRI iterates the previous recommendation that a precautionary approach must be taken to harvesting the stock and managing the effort.

2.27. NORWAY LOBSTER *Nephrops norvegicus*

2.27.1. Landings and effort

Landings were 1 914 tonnes in 2012, 326 tonnes less than in 2011. CPUE (kg/trawl-hour in May–August, standardised using one trawl) was 63 kg in 2012, compared to 71 kg in 2011 and 76 kg in 2010 (table 3.27.2). Regional division of the catch in 2012 is shown in table 3.27.2. on the south-western grounds landings were 791 tonnes, around the Westman Islands landings were 439 tonnes and on the south-eastern grounds they totalled 684 tonnes. On the south-eastern grounds the landings were smaller than in 2011, but there was little change between years in landings from other grounds. CPUE was rather high compared to data since 1960, though it has decreased since the big landings of 2007 and 2008 (figure 2.27.2).

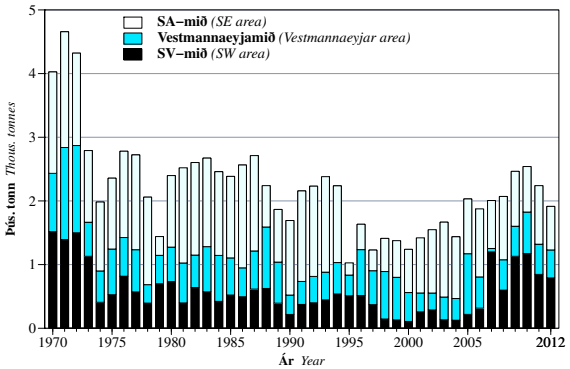


HUMAR. Veiðisvæði við Ísland árið 2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

NEPHROPS. *Fishing grounds in 2012. Dark areas indicate highest catch (tonnes/nm^2).*

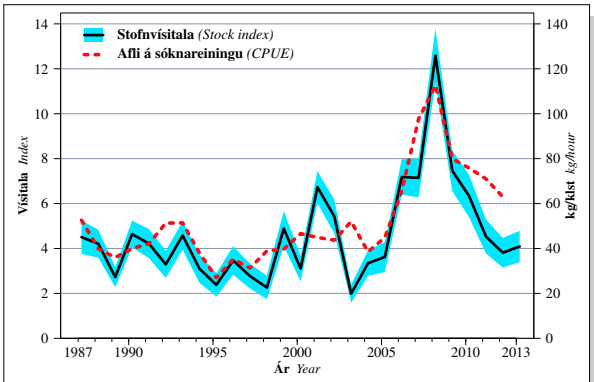
2.27.2. Stock survey

The Norway lobster biomass index in May has decreased since 2008 (figure 2.27.2) and is now just below the 25-year average. The index has reflected well CPUE data, except for some discrepancy in 2011 and 2012 because of small catches in the survey. In the stock survey there is high variability in the fishability because of variable amounts of algae blooming. According to the stock survey in May, 2013 carapace lengths of 48–55 mm (age 9–12) were



Mynd 2.27.1. **HUMAR**. Heildarafli (þús. tonn) árin 1970–2012.

*Fig. 2.27.1. **NEPHROPS**. Landings (thous. tonnes) 1970–2012.*



Mynd 2.27.2. **HUMAR**. Stofnvísitala humars 1987–2013 samkvæmt humarleiðöngrum og staðlaður afli á sóknareiningu 1987–2012.

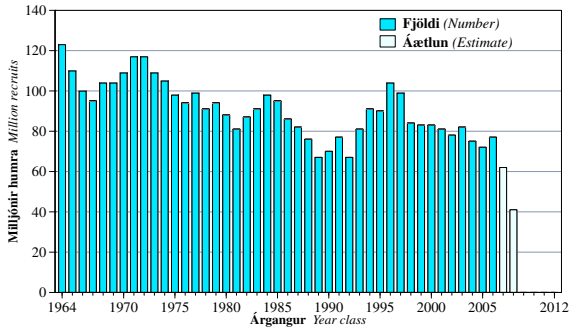
*Fig. 2.27.2. **NEPHROPS**. Survey stock biomass indices in 1987–2013 and standardized CPUE during 1987–2012.*

TAFLA 2.27.1.
HUMAR. Tillögur Hafrannsóknastofnunar um aflahámark, heildaraflamark samkvæmt ákvörðunum stjórnvalda og afli (tonn) árin 1984–2012/2013.

NEPHROPS. *TAC recommended by the Marine Research Institute, national TAC and landings (tonnes) 1984–2012/2013.*

Ár *Year*	Tillaga *Rec. TAC*	Aflamark *National TAC*	Afli alls *Total landings*
1984	2 400	2 600	2 500
1985	2 300	2 400	2 400
1986	2 500	2 500	2 600
1987	2 700	2 800	2 700
1988	2 600	2 600	2 200
1989	2 100	2 100	1 900
1990	2 100	2 000	1 700
1991	2 100	2 100	2 200
1991/92[1)]	2 100	2 100	2 200
1992/93[1)]	2 200	2 400	2 400
1993/94[1)]	2 200	2 400	2 200
1994/95[1)]	2 200	2 200	1 000
1995/96[1)]	1 500	1 500	1 600
1996/97[1)]	1 500	1 500	1 200
1997/98[1)]	1 500	1 200	1 400
1998/99[1)]	1 200	1 200	1 400
1999/00[1)]	1 200	1 200	1 300
2000/01[1)]	1 400	1 400	1 400
2001/02[1)]	1 500	1 500	1 577
2002/03[1)]	1 600	1 600	1 687
2003/04[1)]	1 600	1 600	1 437
2004/05[1)]	1 500	1 500	2 035
2005/06[1)]	1 600	1 800	1 946
2006/07[1)]	1 700	1 800	1 946
2007/08[1)]	1 900	1 900	2 000
2008/09[1)]	2 200	2 200	1 999
2009/10[1)]	2 200	2 200	2 456
2010/11[1)]	2 100	2 100	2 259
2011/12[1)]	2 000	2 100	2 130
2012/13[1)]	1 900	1 900	

[1)] Fiskveiðiárið september–ágúst. *Quota year September–August.*



Mynd 2.27.3. **HUMAR**. Stærð humarárganganna 1964–2008 við fimm ára aldur (í milljónum).

*Fig. 2.27.3. **NEPHROPS**. Size of year classes 1964–2008 at age 5 (in millions).*

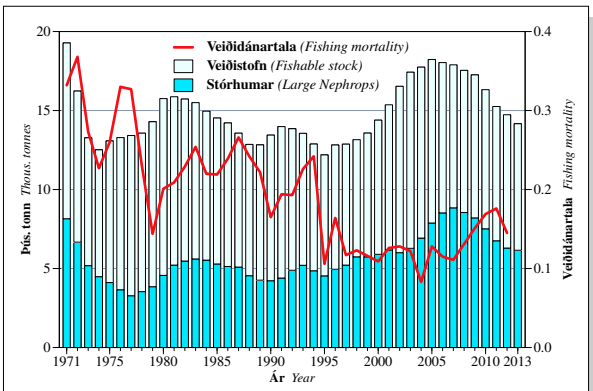
proportionally highest. The proportion that is age 14 and older (≥ 60 mm) is still high and the current number of 70 mm lobsters is unprecedented. However, there has never been less small lobster (<40 mm) but like last year, recruitment has been seen, especially north of Eldey (36–38 mm).

2.27.3. Stock status and projections

According to stock estimates from landings by age analysis, the 1997 cohort is at or below average (figure 2.27.3). Around 1995 stocks were at a minimum and fishing was poor, but after fishing decreased and recruitment improved the stock grew again. From 2007–2010 CPUE was at an historical high and the stock biomass was estimated larger than it had been since the 1960s. Cohorts from 2007 and 2008 are small, as was seen in the survey.

According to the stock assessment fishable stock is now about 14 000 tonnes and is decreasing (figure 2.27.4). Large lobsters (age 10 and older) have also decreased in abundance but are still above the long-term mean. CPUE has reflected this decrease.

Fishing mortalities since 1971 are shown on figure 2.27.4. Since 1995 the goal has been to reach optimum fishing mortality (F=0.15). While this has



Mynd 2.27.4. **HUMAR**. Stærð veiðistofns (6 ára og eldri) ásamt hluta stórhumars (10 ára og eldri) árin 1971–2013 (þús. tonna) og meðalveiðidánartala 6–13 ára humars.

*Fig. 2.27.4. **NEPHROPS**. Fishable stock (age 6+) and large category (10+) biomass during the period 1971–2013 (thous. tonnes), with average fishing mortality of ages* 6–13.

TAFLA 2.27.2.
HUMAR. Áhrif mismunandi aflahámarks á áætlaða stærð veiðistofnsins (tonn) árið 2015.
NEPHROPS. Projection of fishable stock biomass (tonnes) in 2015 for different management strategies.

2013			2014			2015
Stofn 6+ *Stock 6+*	$F^{1)}$	Afli *Catch*	Aflamark *TAC*	Stofn 6+ *Stock 6+*	$F^{1)}$	Stofn 6+ *Stock 6+*
14 200	0.16	1 900	1 550	13 200	0.13	13 750
			1 750	13 200	0.15	13 600
			1 950	13 200	0.17	13 350

[1)] F=Meðalveiðidánartala 6–13 ára humars.
Mean fishing mortality of age groups 6–13.

usually be reached, fluctuations in the stock size and/or differing conditions by area have sometimes produced temporary conditions of overfishing on some fishing grounds.

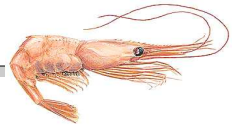
In projection of stock biomass until 2015 (table 2.27.2) the size of cohorts from 2009–2010 is estimated based on the recruitment rate in 2005–2007. And the expected landings in 2013 will be 1 900 tonnes.

Recently a Gadget model for Norway lobster has been in development (See Appendix 5.1). The Gadget model shows similar trends in stock size as does the catch-by-age analysis.

2.27.4. TAC recommendations for quota year 2013/2014

Table 2.27.2 shows MRI TAC recommendation, national TAC and Norway lobster landings since 1984. The stock grew quickly following a stock decrease from 1995–2005. This increase was caused by improved recruitment and less fishing effort. Poor recruitment has caused stock decrease in recent years. MRI recommends, as before, that effort aim at the optimum level (F=0.15) and that in 2013/2014 TAC should not exceed 1 750 tonnes.

2.28. NORTHERN PRAWN *Pandalus borealis*



2.28.1. Landings and effort

Northern prawn has been harvested in Icelandic waters with the 1940s, although for many years only a small area of inshore waters was fished. The offshore prawn fishery began around the middle of the 1970s and quickly surpassed the inshore fishery in scale (figure 2.28.1 and table 3.28.1).

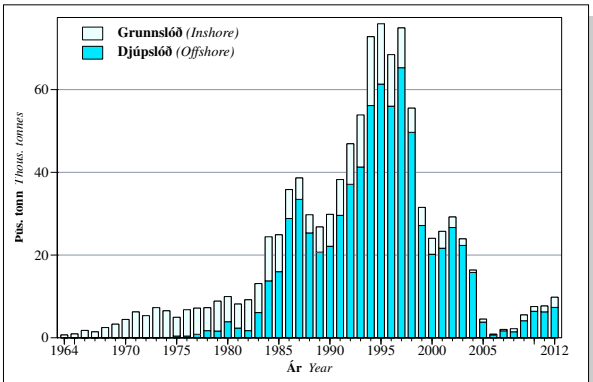
The prawn fishery in Icelandic waters reached a climax in the years 1994–1997 when landings were over 70 thous. tonnes per year. After 1997 harvesting decreased very rapidly and reached a minimum in 2006 when landings were only 860 tonnes. Since then there has been a slow increase in landings and they were 9 800 tonnes in 2012.

2.28.2. Inshore Northern prawns

2.28.2.1. Status 2012/2013 and preliminary TAC for quota year 2013/2014

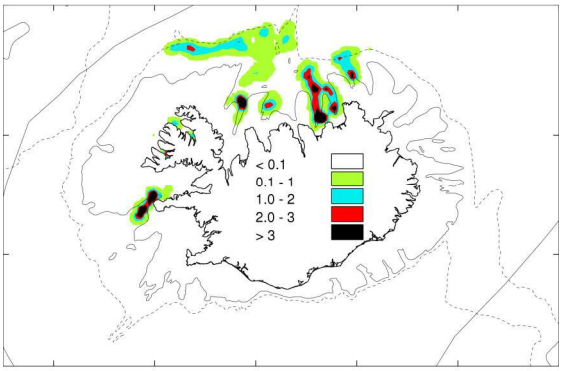
Table 3.28.2 shows landings by area of inshore prawns since 1990/91. In recent years, the only active prawn fishery is around Snæfellsnes and in Arnarfjörður. In quota year 2011/2012 fishing was also allowed in Ísafjarðardjúp and Skjálfandi where landings were 2 500 tonnes. Figure 2.28.2 shows landings by area, but also that the northern stock of prawns collapsed from 1997–2000 as seen in both biomass index and landings. The same thing happened in Ísafjarðardjúp from 2002–2004 and in Arnarfjörður from 2005–2007. In all of these areas predation by cod and haddock is said to have played a significant role in the collapse.

Table 2.28.1 shows MRI TAC recommendations, national TAC and inshore northern prawn landings in prawn seasons 1984/1985–2012/2013. Stock status assessment is based on the results of surveys in April (near Snæfellsnes) and September/October (off the north and northwest coast). MRI only recommends TAC for the grounds near Snæfellsnes



Mynd 2.28.1. **RÆKJA**. Heildarafli á Íslandsmiðum á grunnslóð og djúpslóð árin 1964–2012.

Fig. 2.28.1. ***NORTHERN PRAWN****. Total catches in Icelandic waters from inshore and offshore areas during 1964–2012.*



RÆKJA. Veiðisvæði úthafsrækju við Ísland árið 2012. Dekkstu svæðin sýna mestan afla (tonn á sjm^2).

NORTHERN PRAWN. *Fishing grounds in 2012. Dark areas indicate highest catch (tonnes nmi^2).*

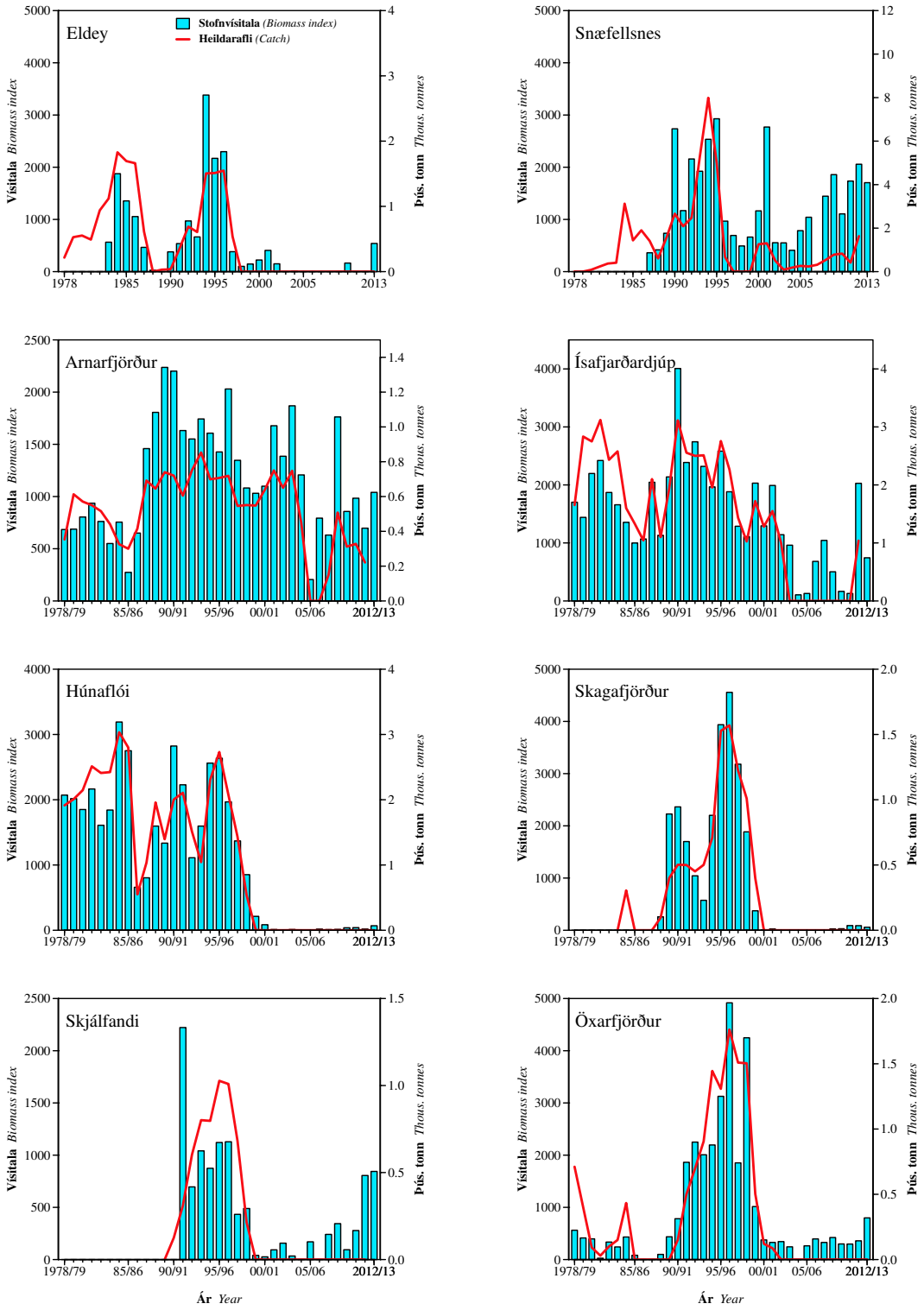
but a recommendation was given for other areas after the completion of surveys in the fall of 2013.

Near **Snæfellsnes** landings have increased steadily in recent years. In 2011 landings were 103 tonnes in Breiðafjörður and 143 tonnes in 2012. At Kolluál the catch was 311 tonnes in 2011 and 1479

Tafla 2.28.1.
RÆKJA Á GRUNNSLÓÐ. Tillögur Hafrannsóknastofnunar um aflahámark, heildaraflamark samkvæmt ákvörðunum stjórnvalda og afli (í tonnum) vertíðarnar 1984/1985–2012/2013.

NORTHERN PRAWN, INSHORE. *TAC recommended by the Marine Research Institute, national TAC and landings (tonnes) 1984/1985–2012/2013.*

Ár *Year*	Tillaga *Recommended TAC*	Aflamark *TAC*	Afli *Catch*
1984/85	7 200	7 400	7 400
1985/86	5 900	6 000	6 100
1986/87	2 900	3 000	2 600
1987/88	3 400	3 800	3 800
1988/89	3 500	3 800	3 800
1989/90	4 200	4 500	4 500
1990/91	6 800	6 900	7 000
1991/92	6 900	6 900	7 100
1992/93	7 400	7 400	7 400
1993/94	8 000	8 000	8 000
1994/95	9 100	9 100	9 100
1995/96	11 900	11 900	11 900
1996/97	10 000	10 000	10 000
1997/98	6 900	6 900	6 900
1998/99	4 900	4 900	4 900
1999/00	3 290	3 290	3 300
2000/01	2 500	2 500	2 500
2001/02	2 400	2 400	2 400
2002/03	1 950	1 950	1 700
2003/04	750	800	800
2004/05	650	650	700
2005/06	200	200	250
2006/07	200	200	300
2007/08	550	550	700
2008/09	900	900	1 400
2009/10	1 200	1 200	1 100
2010/11	850	850	1 400
2011/12	2 050	2 050	2 500
2012/13	2 600	2 600	



Mynd 2.28.2. **RÆKJA**. Afli (lína) og vísitala stofnstærðar (súlur) á grunnslóð sumar/haust frá árinu 1978.

Fig. 2.28.2. ***NORTHERN PRAWN.*** *Inshore catch (line) and biomass indices (columns) during summer/autumn since 1978.*

tonnes in 2012. In Jökuldjúp landings have been insignificant except in 2000 when they were 1 100 tonnes (figure 2.28.2). Recommended maximum landings from Snæfellsnes is at most 950 tonnes in quota year 2013/2014. Though the area is included in the offshore fishery, it seems that the prawns on Kolluál and Jökuldjúp are not offshore prawns but are of the same population as the prawns of southern Breiðafjörður. MRI therefore recommends that the area around Snæfellsnes (Kolluáll, Jökuldjúp and

Breiðafjörður) be closed when the TAC is reached.

No fishery has been allowed at **Eldey** since the collapse in 1997 (figure 2.28.2). The area was surveyed in the spring of 2013, the conclusion was that the stock has increased considerably since 2010 and the biomass index is close to the long-term mean. MRI recommends that fishing of up to 250 tonnes be allowed in 2013.

According to the winter survey in 2012/2013 the prawn stock in **Arnarfjörpur** is below average (figure 2.28.2). Prawns were not measured in Borgarfjörður so the distribution of northern prawns is similar to that since 2004. There was less cod than in the fall of 2011 but there was more haddock. A recommended TAC of 450 tonnes was set for Arnarfjörður in quota year 2012/2013.

According to the September survey northern prawn stock in **Ísafjarðardjúp** was far below average. As in most inshore waters, cod were very abundant from 2003–2005. The abundance of fish is considered the main reason for prawn stock decrease in 2004. In the fall of 2012 a lot of cod and haddock were found in the area. Following an extra survey in late October, a recommended TAC of 300 tonnes in Ísafjarðardjúp was given out for 2012/2013. Fishing was limited to the outer end of Ísafjarðardjúp because there was a low proportion of spawning females farther in. The stock size and distribution of prawns was monitored in Ísafjarðardjúp until spring and after the survey in March it was decided that TAC should be 500 tonnes.

In **Skjálfandi** the biomass index was similar to that in 2011, which was a considerable increase over the previous year. The shrimp fishery has been closed since the end of the 1998/1999season. A TAC of 400 tonnes has been recommended in Skjálfandi for quota year 2012/2013.

In **Öxarfirði** the biomass index in 2012 had increased a lot from previous years. It is recommended that the fishery remain closed in quota year 2012/2013 as the majority of stock is young prawns.

In the September survey of 2012 little change in biomass was detected in the northern prawn stock in **Húnaflói** and **Skagafjörður** (figure 2.28.2). Prawn stocks in these two areas have been at a low and fishing has not been conducted for the last 13–14 seasons. The collapse of the prawn stock was caused by increased migrations of fish. There was much less haddock in the area in 2012 and the abundance of haddock was well below average from 1996 until 2012 in these areas. The abundance of cod in the fall of 2012 was similar to that in 2011.

Mean size of prawns (number/kg) by area is shown in table 3.28.3. Prawns were smallest in 2012 in Skagafjörður (493 indiv./kg) and in Ísafjarðardjúp (353 indiv./kg) but the largest prawn were in Breiðafjörður (180 indiv./kg).

2.28.3. Offshore prawns

2.28.3.1. Trends in fishing and landings

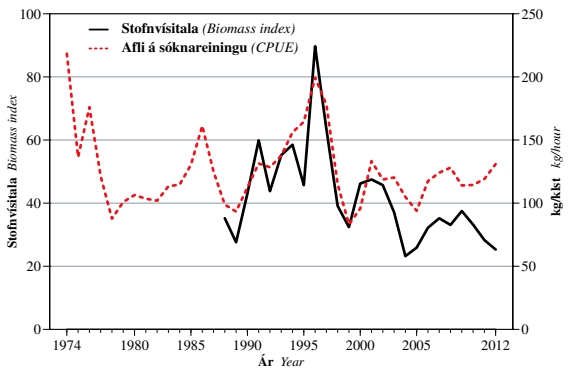
Offshore northern prawn fishing to the north of Iceland began in the 1980's and were rather limited until 1984 when they increased substantially until reaching a climax in 1997 when over 65 thous. tonnes were landed. From 1998–1999 landings decreased from 49 thous. tonnes to 27 thousand tonnes and were from 20–27 thous. tonnes until 2003. In 2004 and 2005 landings decreased even more until 2006 when only 600 tonnes were landed (table 3.28.4). Since 2006 landings have increased and reached 7 000 tonnes in 2012. From 2000/2001 until 2011/2012 landings were below TAC. Offshore prawn landings from a few sub-areas is shown in table 3.28.4.

CPUE (standardized for 1600 mesh trawl) have been variable since fishing began but reached a maximum in 1996 of 200 kg/h but fell quickly to 83 kg/h in 1999. From 2001–2003 CPUE increased then it decreased from 2004–2005 to about 100 kg/h (figure 2.28.3). Since, it has increased a lot and in 2012 it had reached the average of the years 1988–2012. Mean size of prawns from 1997–2012 by region is shown in table 3.28.5. In 2012 smallest prawns were in Bakkaflói (330 indiv./kg) and the biggest in Rauða Torgið (149 indiv./kg) and on Norðurkant (155 indiv./kg). Variation in mean size is correlated to cohort strength in each region.

Rauða Torgið and **Hali** are outside traditional survey areas. At Rauða Torgið prawn landings have gotten up to 1 400 tonnes and 2 000 tonnes at Hali. Almost no prawn fishing has been conducted in these areas since 2005, except for 99 tonnes landed from Hali in 2009 and 28 tonnes in 2012 (table 3.28.4).

2.28.3.2. Relationship of fish and prawns

Predation by cod on prawns is considered to have a significant effect on stock size but in order to estimate such predation it is necessary to have an estimate of the abundance of cod in the prawn



Mynd 2.28.3. **RÆKJA**. Afli á sóknareiningu (kg/klst.) 1974–2012 á helstu úthafsrækjusvæðum og stofnvísitala úthafsrækju 1988–2012.

Fig. 2.28.3. ***NORTHERN PRAWN****. CPUE during 1974–2012 and biomass indices in 1988–2012 in major offshore fishing grounds.*

fishing grounds. Figure 2.28.4 shows three different indices of the abundance of cod in the northern fishing grounds. That is, indices from the spring groundfish survey (SMB 1985–2012), indices of cod in northern shrimp surveys (SMR July–August, 1987–2012) and indices from fall stock surveys (SMH 1996–2012). Indices from the SMB and SMH give indication of the abundance of cod across all of the northern and eastern waters (from Norðurkant to Berufjörður) in fall and winter. SMR indices show cod abundance in the deep water to the north and east where the prawns remain over the summer .

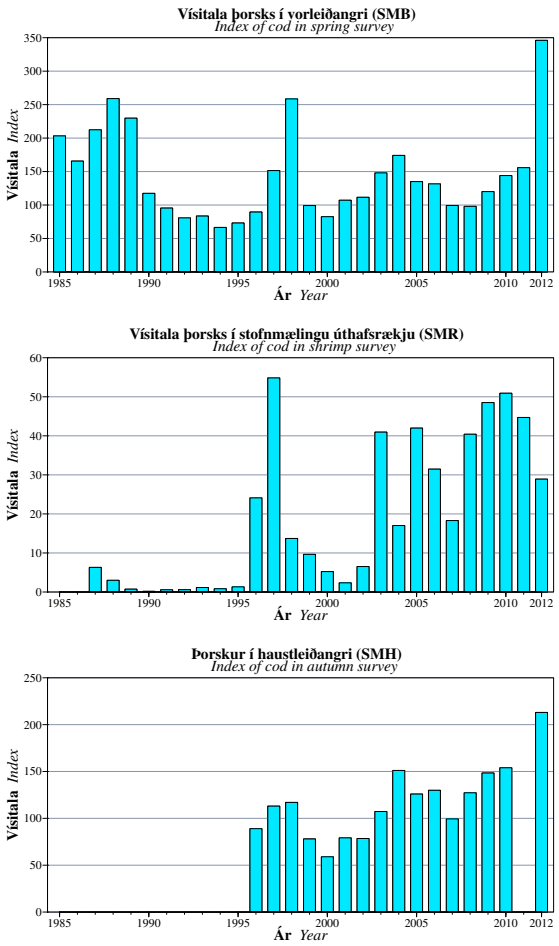
Indices from SMR and SMB provide very different descriptions of the abundance of cod in the distribution range of northern shrimp. According to the SMR there was much more cod from 1996–2012 then from 1987–1995. In the period 1989–1995 hardly any cod was caught but at that time the offshore northern shrimp stock reached a climax. A great abundance of cod has been measured in the SMR and SMH in the last nine years.

Tafla 2.28.2.
ÚTHAFSRÆKJA. Tillögur Hafrannsóknastofnunar um aflahámark, heildaraflamark samkvæmt ákvörðunum stjórnvalda og afli (í tonnum) árin 1987–2011/2012.

NORTHERN PRAWN, OFFSHORE. *TAC recommended by the Marine Research Institute, national TAC and landings (tonnes) 1987–2011/2012.*

Ár *Year*	Tillaga *Recommended TAC*	Aflamark *TAC*	Afli *Catch*
1987[1)]	30 000	30 000	33 400
1988[1)]	30 000	30 000	24 500
1989[1)]	20 000	20 900	20 900
1990[1)]	22 000	24 600	24 400
1991[1)]	28 000	-	30 700
1991/92[2)]	35 000	40 000	34 200
1992/93[2)]	35 000	40 000	41 800
1993/94[2)]	40 000	52 000	53 200
1994/95[2)]	60 000	62 000	61 200
1995/96[2)]	40 000[3)]	63 000	65 000
1996/97[2)]	55 000	60 000	57 300
1997/98[2)]	70 000	75 000	60 900
1998/99[2)]	40 000[4)]	40 000	30 700
1999/00[2)]	20 000	20 000	20 700
2000/01[2)]	25 000	25 000	22 100
2001/02[2)]	35 000	35 000	27 400
2002/03[2)]	30 000	30 000	24 300
2003/04[2)]	20 000	20 000	18 000

[1)] Almanaksár. *Calendar year.*
[2)] Fiskveiðiár. *Quota year.*
[3)] Tillaga um upphafsafla. *Provisional TAC.*
[4)] Tillaga um leyfilegan hámarksafla var upphaflega 60 þús. tonn en var endurskoðuð í janúar 1999 og breytt í 40 þús. tonn. *Recommended TAC originally set at 60 thous. tonnes, but revised to 40 thous. tonnes in January 1999.*
[5)] Engin tillaga um hámarksafla en sagt að óbreytt sókn leiði af sér 15 þús. tonna afla. *No rec. TAC but unchanged effort gives 15 thous. tonnes.*



Mynd 2.28.4. **RÆKJA**. Þrjár vísbendingar um þorskgengd á rækjusvæðunum á Norður- og Austurmiðum.

Fig. 2.28.4. ***NORTHERN PRAWN****. Three different indices that show the quantity of cod north and east of Iceland.*

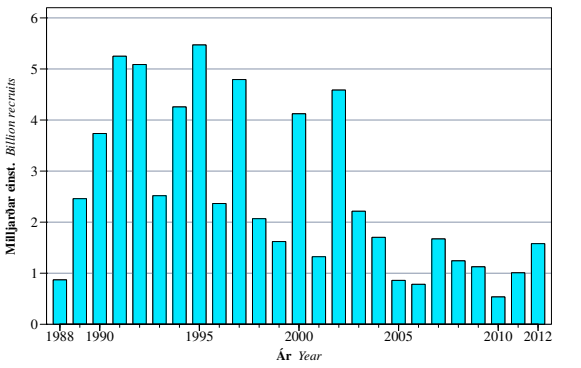
The Greenland halibut is also considered to have an effect on the northern shrimp stock. Abundances of Greenland halibut in the SMR were much higher in the years 1987–1994 than in the years 1995–2008, but since 2009 the abundance of Greenland halibut has declined considerably .

2.28.3.3. Stock status

The biomass index of offshore prawns in 2012 was similar to that in 2011 and is close to an historical low. The biomass index of females is stable but the spawning stock is below the period average from 1998–2011.

The distribution of northern prawns has changed over recent years. The biomass index of prawns on the northern slope has fallen and not much prawns have been found offshore from the north-east of Iceland in recent years. On the other hand, the biomass of prawns near Grímsey has remained rather steady and in 2012 it was near the average of the period 1988–2011.

Recruitment begins with age two prawns (figure 2.28.5). Since 2004 the recruitment index for prawns



Mynd 2.28.5. **RÆKJA**. Nýliðun tveggja ára úthafsrækju (fjöldi) á svæðinu Norðurkantur–Héraðsdjúp árin 1988–2012.

*Fig. 2.28.5. **NORTHERN PRAWN**. Recruitment indices of 2 year old prawn in the area Norðurkantur–Héraðsdjúp during 1988–2012.*

has been far below average and all year classes from 2002–2010 are expected to be very small .

2.28.3.4. TAC recommendations for quota year 2013/2014

Table 2.28.2 shows MRI TAC recommendations, national TAC and landings since 1987. Effort has increased in recent years, but despite the fact that the fishery was opened in 2010 TAC was not reached until 2012. Landings from Norðurkant have been small in recent years, but the largest prawns are caught there and it was one the best fishing grounds. From 2011–2012 most of the prawn landings came from Grímsey where prawns are smaller.

The results of the SMR in 2012 indicate a decline in stock, predation by cod is high and recruitment seems to be poor as in recent years. Increased abundance of Greenland halibut in the region contributes to predation on prawns.

In light of this information MRI recommends a TAC of 5 000 tonnes in quota year 2013/2014.

2.28.4. Other northern prawn fisheries

The majority of the northern prawn stock on the **Dohrn Bank** and along East Greenland is said to stay west of the mid line between Greenland and Iceland, which lies across the northernmost grounds of the Dohrn Bank. There are no international agreements about fishing management and catch sharing of this stock. Landings of all nations from East Greenland were about 1 thous. tonnes in 2011 and about 2 thous. tonnes in 2012, compared to the roughly 12 thous. ton periodical average from1994–2003. Icelandic landings from Dohrn Bank have always been variable because of the prevalence of sea ice. Landings climaxed at 2 900 tonnes in 1997. Since 2006 Icelandic vessels have landed almost nothing from the Dohrn Bank. The Northwest Atlantic Fisheries Organization (NAFO) recommends that landings from East Greenland should not exceed 12 400 tonnes in 2012. This recommendation has been given every year from 2004–2011. The stock status is thought to have been good since 1998.

In 1993 fishing began on **Flemish Cap**, in international waters east of Canada. Icelandic landings increased from 2 200 tonnes in 1993 to almost 21 thous. tonnes in 1996. From 1997–2006 landings were between 2 000–9 300 tonnes (table 3.28.1). After 2006 Icelandic vessels have not fished the Flemish Cap.

Northern prawn fishing began on the **Grand Banks** in 1993 but catches were small for the first two years. Faroese vessels fished there from 1996–1999 and in 2000 NAFO set a 6 000 ton TAC. Canadian ships were allocated 5 000 tonnes and other countries in the NAFO would have to split the other 1 000 tonnes. In this way each nation was allocated 67 tonnes. NAFO recommended that the TAC for the Grand Banks would go up to 13 thous. tonnes for the years 2004 and 2005. This meant an increased TAC of 144 tonnes for each nation outside of Canada. The TAC was raised to 22 thous. tonnes for 2006–2007 after the NAFO decided that the upper limit of fishing was 12% of the fishable biomass index for the years 2002–2004. TAC for the year 2013 was 8 600 tonnes.

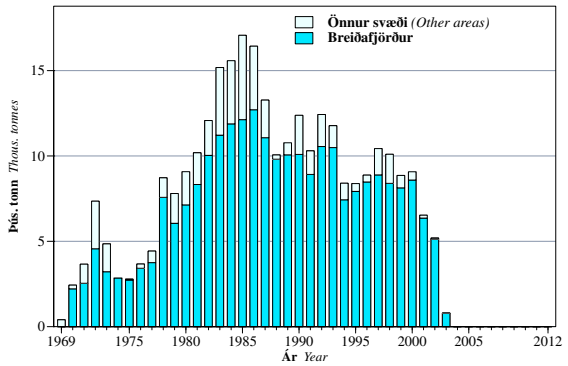
TAC for Icelandic vessels for the years 2006 and 2007 was 245 tonnes. Recorded landings in 2006 were 226 tonnes (table 3.28.1). In the years 2007–2009 there was no Icelandic catch recorded from the region. However, in 2010 landings totalled 185 tonnes and in 2011 the total was 124 tonnes (table 3.28.1). In 2012 no landings were recorded.

Northern prawn fishing began in the **Barents Sea** in 1970. part of the region is international waters and Icelandic vessels began fishing there in 1997. The largest Icelandic landings were just over 2 000 tonnes in 1998. From 2001–2010 Icelandic landings were negligible in 2011 and less than 1 000 tonnes in 2012. Over the last ten years, landings of all nations from this region were between 20–60 thous. tonnes. ICES recommended a 60 thous. ton TAC in 2012.

2.29. ICELAND SCALLOP *Chlamys islandica*

2.29.1. landings and effort

The Iceland scallop fishery was closed for the 2012/2013 season, for the tenth year in a row. Total annual landings were usually 9 500 tonnes in the years 1996–2000, thereof 8 500 tonnes in Breiðafjörður (figure 2.29.1 and table 3.29.1). In the years 1996–1999 CPUE (catch per haul-hour with a single dredge) in Breiðafjörður about 1 600 kg but decreased to 709 kg in 2003, the last year of harvesting.



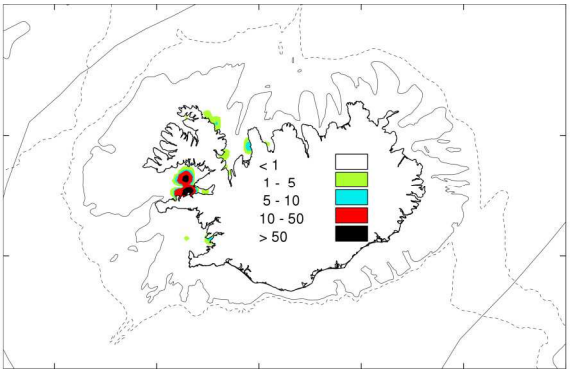
Mynd 2.29.1. **HÖRPUDISKUR**. Heildarafli 1969–2012.

Fig. 2.29.1. ***ICELAND SCALLOP****. Landings 1969–2012.*

2.29.2. Stock status

According to a stock survey in southern Breiðafjörður in 2012 fishable stock biomass was still at a minimum, But more scallops were found near Stykkishólmur and Breiðasund, where stocks have been strongest. The northern area of Breiðafjörður was not surveyed in 2012. The first indication of decline was seen in the survey in Breiðafjörður in April, 2001 when the biomass index was about 27% than it was from 1993–2000 (figure 2.29.2). This trend continued until 2006 and the index has changed little since. The main change is that the proportion of ≥ 60 mm shells has increased and ≥ 80 mm shells are much more common. Young shells continue to decline and all cohorts from 2004–2009 are at historical lows. According to larva surveys in the fall of 2010 a significant increase was expected in age two shells and they were found in some locations in 2012. Settlement was poor in fall surveys in 2011 and 2012.

With the decline of the stock distribution has shrunken and natural mortality has remained high. Studies have shown correlation stock decrease and increased mortality other than fishing mortality. The probable cause of the collapse is a protozoan infection accompanied by tissue changes in the adductor muscle. The infection also manifests as poor development of reproductive tissues which,



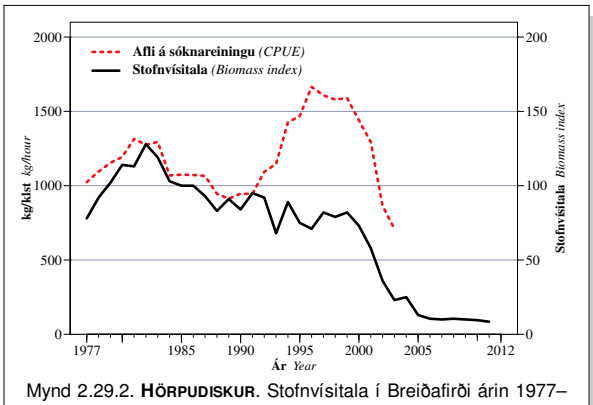
HÖRPUDISKUR. Veiðisvæði við Ísland árin 1995–2003. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

ICELAND SCALLOP*. Fishing grounds in 1995–2003. Dark areas indicate highest catch (tonnes/nmi^2).*

along with a small spawning stock, has led to poor recruitment. Mortality increased with size/age and was worst for the shells that comprised the majority of the stock (> 60 mm). The increase in large shells from 2007–2012 seems to indicate less infection and lower mortality in the stock. Muscle mass in the shells has also increased in recent years.

2.29.3. Projections and TAC recommendations for quota year 2013/2014

Stock biomass has varied much since 2000 and it is still at an historical low. Cohorts from 2004–2009 are very weak so there is no indication that the stock status will improve much in coming years. MRI recommends a continued closure in quota year 2013/2014.



Mynd 2.29.2. **HÖRPUDISKUR**. Stofnvísitala í Breiðafirði árin 1977–2011 og afli á sóknareiningu hjá skelbátum á sama svæði 1977–2003.

Fig. 2.29.2. ***ICELAND SCALLOP****. Survey biomass index in Breiðafjörður 1977–2011 and CPUE from scallop boats in the same area during* 1977–2003.

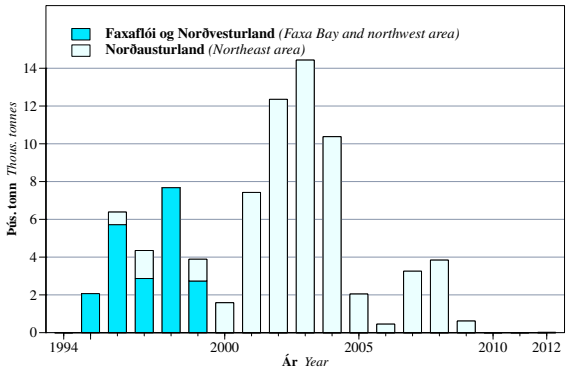
2.30. OCEAN QUAHOG *Arctica islandica*

2.30.1. Catch and effort

Harvesting of ocean quahogs for human consumption was conducted from 1988–1999 with some breaks and the main harvesting grounds stretch from Breiðafjörður to Skagatá. Landings were in the range of 1 100 to 7 700 tonnes (table 3.30.1). Harvesting in the region from Skagatá east to Ingólfshöfði began in 1996 and landings until the year 2005 were in the range of 700–14 400 tonnes (figure 2.30.1 and table 3.30.1). Harvesting has been insignificant from 2005 due to poor marketability and landings in 2011 were only 5 tonnes (table 3.30.1). CPUE according to fishing logs were similar from 2001–2008, 7 000–10 100 kg/h but effort was variable. In 2009 all fishing with hydraulic dredge ceased and all fishing was conducted with dry dredge.

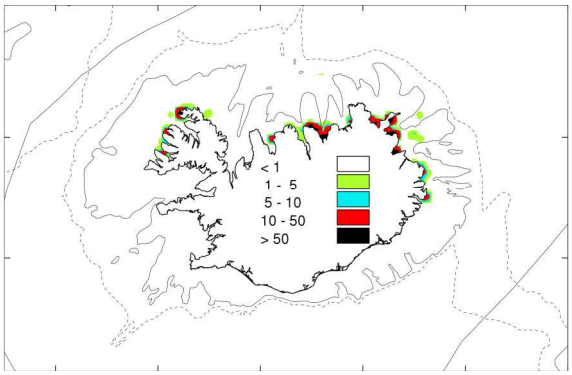
2.30.2. Stock status

Studies show the ocean quahogs are long-lived and slow-growing. The mainstay of the fishable stock is large old quahogs. Density of quahogs at 5–50 m depth has been studied from Garðskagi clockwise to Ingólfshöfði and the stock in the region is estimated at 1.3 million tonnes .



Mynd 2.30.1 **KÚFSKEL**. Afli á Íslandsmiðum eftir veiðisvæðum 1994–2012.

Fig. 2.30.1 ***OCEAN QUAHOG.*** *Landings from Icelandic fishing grounds by areas 1994–2012.*



KÚFSKEL. Veiðisvæði við Ísland árin 1998–2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

OCEAN QUAHOG. *Fishing grounds in 1998–2012. Dark areas indicate highest catch (tonnes/nmi^2).*

2.30.3. TAC recommendations for quota year 2012/2013

TAC has so far not been regionally restricted but as a precaution it has been proposed that for every 4–7 year period the landings not exceed 2.5% of the estimated amount of ocean quahog in each area. With these considerations in effect, the total landings of quahog, on those areas that have been studied, could be as much as 31 500 tonnes in the quota year 2013/2014.

2.31. COMMON WHELK *Buccinum undatum*

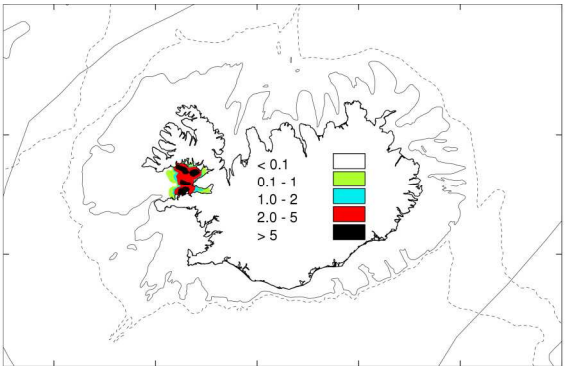
2.31.1. Catch and effort

Experimental harvesting of common whelk began in Breiðarfjörður in 1996 and landings totalled 500 tonnes that year. Since then landings have been variable because of market conditions, largest catch was 1 300 tonnes in 1997 but in 1998 and 2002 there was almost nothing landed. In the year 2003 effort increased again because of a very good market and landings went up to almost 1 000 tonnes in 2005. After that landings dropped off again and were only about 140 tonnes in 2010 (table 3.30.1). Effort increased again in 2011 and landings reached a total of over 500 tonnes .

Bycatch in each towed trap in 2012 was 1.7 kg as compared to 2.6 kg in 2011. This is below the period average from 1996–2005 which is 3.6 kg in towed traps. Since the commencement of fishing the catch per trap has been 1.7–4.8 kg (table 3.31.1). Data shows that CPUE is highly variable by season and area. The area and season that the biggest catches occur is also variable from year to year. In 2012 effort was relatively even throughout the season, in part because of low CPUE.

2.31.2. Stock status

According to a fall survey of Breiðafjörður in 2012, common whelk biomass was lower than that in a similar survey conducted in the first two years of fishing the stock (1997–1998), or 23.7 as compared to 26.9. However, the index decreased most south of Brjánslækur where very little fishing has been conducted. When fishing grounds are compared there is little variation in the index, though there is skew in the measurements. Fishing in Breiðafjörður over the last 15 years does not seem to have had a strong effect on the stock biomass.



BEITUKÓNGUR. Veiðisvæði við Ísland árið 2000–2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

COMMON WHELK. *Fishing grounds in 2000–2012. Dark areas indicate highest catch (tonnes/nmi^2).*

2.31.3. Recommended TAC in quota year 2013/2014

Last year MRI recommended that fishing be similar to the average of the last decade in southern Breiðafjörður so landings would not exceed 450 tonnes and total landings from Breiðafjörður would not exceed 750 tonnes. The southern section is demarkated at 65°15' N and west of 22°30' W. In light of the survey results from 2012 MRI recommends the same TAC in Breiðafjörður in quota year 2013/2014.

2.32. SEA CUCUMBER *Cucumaria frondosa*

2.32.1. Landings and effort

Experimental fishing of sea cucumbers in Breiðafjörður began in 2003 and landings were small until 2008, when they reached 1 000 tonnes (figure 2.32.1). Since then, landings increased to a climax in 2011 of just less than 2 700 tonnes. In 2012 landings exceeded 1 400 tonnes. Main fishing grounds in 2012 were in Faxaflói (775 tonnes) and off the east coast (640 tonnes). CPUE in 2012 averaged about 1 140 kg/h which is similar to that of the previous year (table 3.32.1).

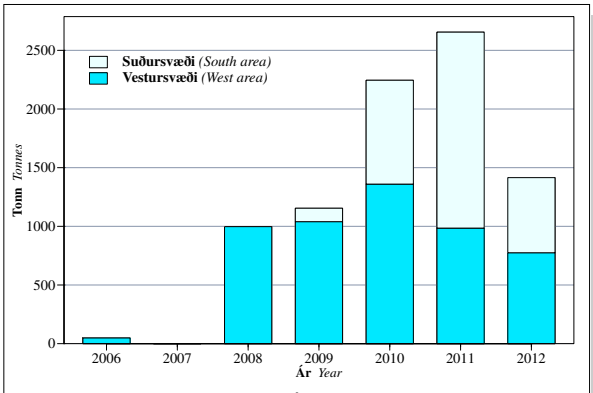
There were three areas defined:

1. Western area: Reykjanes Lighthouse–Skagatá
2. Northern area: Skagatá–Glettinganes
3. Southern area: Glettinganes–Reykjanes Lighthouse

Three vessels have permits in each area. No harvesting is permitted in June and July because of spawning.

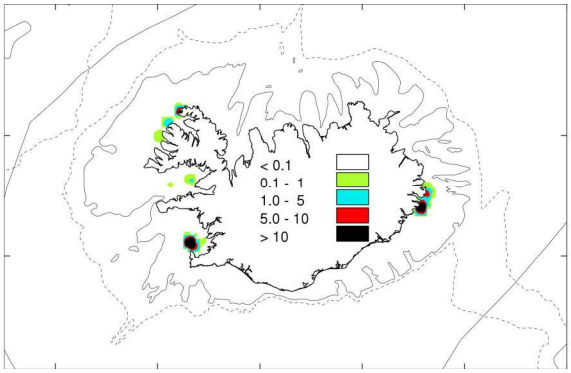
2.32.2. Stock status

Little is known about the distribution and biomass of sea cucumbers in Icelandic waters but the distribution is thought to be highly patchy. Biomass surveys have only been conducted on four fishing grounds within one of the three defined areas. These are: the mouth of Aðalvík (3 100 tonnes) and on three tracks in Faxa Bay (in all over 15 000 tonnes). The efficiency of the dredges used in harvesting is not fully understood but in the stock survey it is assumed to be 100% efficient .



MYND 2.32.1 **SÆBJÚGA**. Afli á Íslandsmiðum eftir veiðisvæðum 2006–2012.

FIG. 2.32.1 ***SEA CUCUMBER.*** *Landings from Icelandic fishing grounds by areas 2006–2012.*



SÆBJÚGA. Veiðisvæði við Ísland árin 2008–2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

SEA CUCUMBER. *Fishing grounds in 2008–2012. Dark areas indicate highest catch (tonnes/nmi^2).*

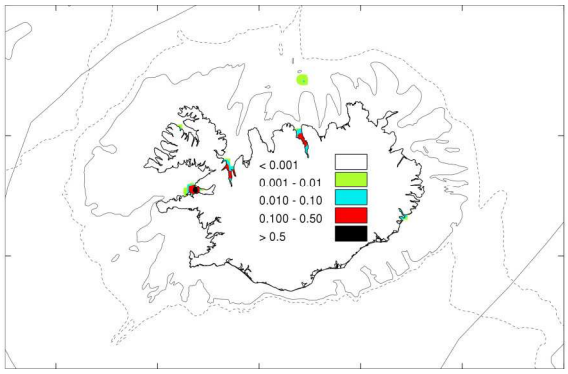
2.32.3. TAC recommendations for quota year 2013/2014

MRI recommends that TAC in quota year 2013/2014, on each fishing ground within each area, not exceed 10% of the estimated biomass of the area and that the number of permits continue to be limited. Fishing grounds within each area are increasing in number and MRI will continue to work in collaboration with fishing vessels to estimate stock biomass in each new area.

2.33. GREEN SEA URCHIN *Strongylocentrotus droebachiensis*

Green sea urchin harvesting began in Iceland in 1993. Harvesting reached a climax in 1994, and then landings were 1 500 tonnes. The following year landings were almost 1 000 tonnes and about 500 tonnes in 1996. The majority of landings were harvested in Breiðafjörður: about 800 tonnes in 1994 and 1995 and nearly 350 tonnes in 1996. In the years 1997–2003 harvesting mostly ceased. Although the decrease in landings is explained in most part by a poor market, many of the best harvest grounds were damaged by the harvesting process in the first years.

Harvesting began anew in Breiðafjörður in 2004 when landings totalled 40 tonnes. In 2007 landings were about 130 tonnes and since then landings have been from 125–145 tonnes (table 3.33.1). Catch per haul hour in Breiðafjörður was 365 kg in 2012 but has fluctuated between 365–480 kg since 2006. In harvesting this stock, it is important to keep in mind that the places with marketable quality sea urchins are limited in size so it is easy to overfish them. Very little is known about the yield capacity of the green sea urchin in Icelandic waters and for this reason harvesting needs to be conducted and managed with caution.



ÍGULKER. Veiðisvæði við Ísland árin 1995–2012. Dekkstu svæðin sýna mestan afla (tonn/sjm^2).

SEA URCHIN. *Fishing grounds in 1995–2012. All gears combined. Dark areas indicate highest catch (tonnes/nmi^2).*

2.34. WHALES *Cetacea*

2.34.1. Whaling in Icelandic waters

Whaling of large whales has been conducted, with some breaks, in Icelandic waters since 1883. From 1948 whaling was limited to the operation of a single whaling station in Hvalfjörður which most of the time supported four vessels for the whaling season (June–September) for many years. In the years 1948–1985 the annual catch averaged 234 fin whales and 68 sei whales and during 1948–1982 82 sperm whales (protected in the North Atlantic since 1982).

Minke whale harvest was conducted by small motor boats for most of the last century. For most of this period the harvest was a small scale operation, a few dozen whales per year. In the years 1977–1985 the International Whaling Commission (IWC) set the annual catch limits for the area East Greenland/ Iceland/Jan Mayen and most of these years, the Icelandic portion of the catch was about 200 whales (table 3.34.1).

In 1986 the IWC decision of a temporary moratorium on commercial whaling came into effect. In accordance with the International Whaling Convention, a limited number of fin and sei whales were caught for research purposes in 1986–1989. In addition, a total of 200 minke whales were caught for research purposes over the years 2003–2007.

In 2006 Icelandic commercial whaling resumed, catching minke and fin whales. In January 2009 the Icelandic authorities adopted a management plan that sets the annual TAC of minke and fin whales in 2009–2013 equal to the number of whales specified in the Marine Research Institute's (MRI) advice.

2.34.2. Cetacean surveys

The MRI, in cooperation with neighbouring countries in the North Atlantic, has participated in wide-ranging cetacean sightings surveys in the years 1987, 1989, 1995, 2001 and 2007. The organization of the surveys and analysis of the results have been overseen by the North Atlantic Marine Mammal Commission (NAMMCO) and the Scientific Committee of the IWC. These surveys have been the main basis for stock assessments of minke and fin whales in Icelandic waters under the auspices of the scientific committees of NAMMCO and IWC. Fin whales have increased considerably in number since 1987, especially west of Iceland. The results of the surveys also show a significant increase in the abundance of humpback whales. Minke whales have, on the other hand, dropped in abundance over recent years. The next whale survey is planned for 2015.

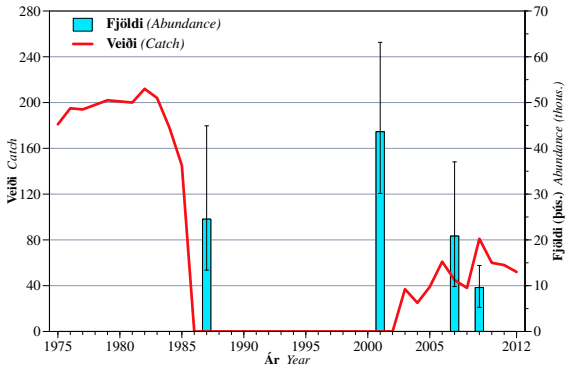
2.34.3. Stock status and recommendations

2.34.3.1. Common minke whale *(Balaenoptera acutorostrata)*

Available data indicate that in the North Atlantic Ocean there are at least three minke populations with summer distributions along West Greenland and Canada, East Greenland/Iceland/Jan Mayen (Central North Atlantic population) and Norway (Northeast Atlantic population). According to previous assessments from the NAMMCO Scientific Committee of the status of the Mid-Atlantic population of minke whales, the stock size is close to pre-exploitation level (the stock size before whaling began). The whaling that has been conducted in the last century therefore seems to have had little effect on the stock size.

Since the commencement of aerial surveys of the Icelandic shelf waters in 1987, there has been significant variation in the number of minke whales (figure 2.34.1). The population estimated following the last count in 2009 was 9 600 whales (95% confidence interval 5 300–14 400). This is the lowest estimate since surveys began in 1987, but it is important to remember that aerial counts cover only a small portion of the population's range. The Scientific Committee of NAMMCO discussed the above results at its annual meetings in the years 2008–2010 and concluded that the surveys most likely reflected a temporary change in the distribution due to food availability, rather than a drastic decrease in the population. The committee concluded that the limited whaling conducted in Icelandic waters since 2003 could not explain these variations.

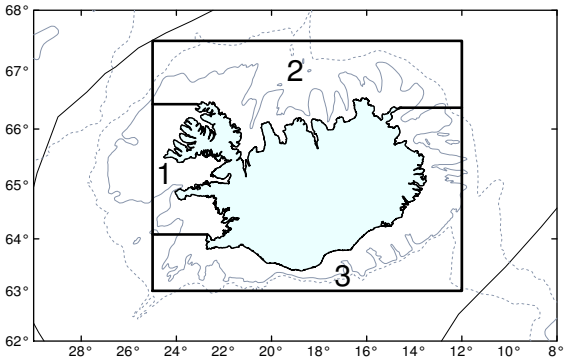
In 2010–2011 the NAMMCO Scientific Committee evaluated the status and potential yield of



Mynd 2.34.1. **HREFNA**. Hrefnuveiðar og fjöldi hrefna á landgrunnsvæði Íslands 1975–2012 ásamt 95% öryggismörkum.

*Fig. 2.34.1. **MINKE WHALE**. Whaling and abundance of minke whales in the Icelandic continental shelf area with 95% confidence intervals during 1975–2012.*

the minke whale population in Icelandic waters. The assessment was based on the Revised Management Procedure (RMP) developed by the IWC, and incorporated, among other data, the results of the surveys from 1987, 2001, 2007 and 2009. According to this assessment, annual catches of 229 minke whales are sustainable and consistent with a precautionary approach. Likewise, an annual catch of 121 minke whales in the subarea around Jan Mayen (CM), partly within the Icelandic EEZ, is considered precautionary. If whaling is conducted in that subarea, whaling activities of all nations will have to



Mynd 2.34.2. **HREFNA**. Skipting íslenska landgrunnsins í þrjú undirsvæði.

*Fig. 2.34.2. **MINKE WHALE**. Division of the Icelandic continental shelf into three subareas.*

be taken into account. This recommendation is consistent with that of the NAMMCO scientific committee.

Minke whaling has, in recent years, led to catches of less than one third of the recommended TAC. Based on the above assessments the MRI recommends that annual catches for the years 2014 and 2015 be at the most 229 minkes in the Icelandic shelf region (CIC) and 121 minkes in the CM area.

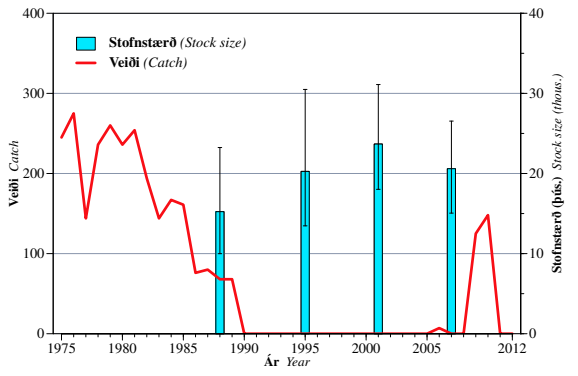
Due to the uncertainty about the population size of minke whales and the likelihood of mixing between areas, it is desirable to spread whaling effort within the Icelandic shelf area based on previous knowledge of minke distribution from whale surveys. For this reason, the MRI recommends dividing the Icelandic shelf region into three areas (figure 2.34.2) with the following maximum proportions of Iceland's total quota:

1. Western area from a line drawn directly west of Garðskagi to a line directly west of Straumnes (up to 45%)
2. Northern area from the line at Straumnes to a line drawn directly eastward from Fontur on Langanes (up 45%)
3. Eastern/southern area between the line at Fontur to Garðskagi (up to 60%).

Official assessment of the North Atlantic minke whale population is scheduled for the annual IWC Scientific Committee meeting in the summer of 2014.

2.34.3.2. Fin whale *(Balaenoptera physalus)*

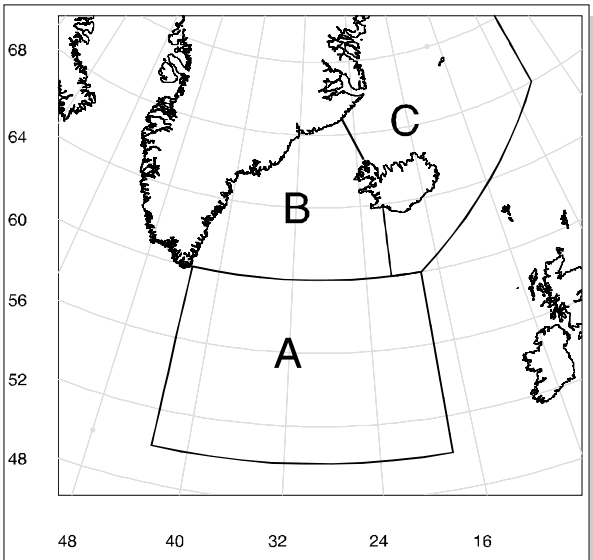
The management of fin whaling in the North Atlantic has traditionally been based on seven management areas: 1) Nova Scotia, 2) Newfoundland/Labrador, 3) West Greenland, 4) East Greenland/Iceland (EGI), 5) Northern Norway, 6) Western Norway/Faroes, and 7) British Isles/Spain/Portugal.



Mynd 2.34.3. **LANGREYÐUR**. Langreyðaveiðar og stofnstærð (Austur Grænlands—Íslands stofn) langreyðar 1975–2012 ásamt 95% öryggismörkum.

*Fig. 2.34.3. **FIN WHALE**. Whaling and stock size (East Greenland—Iceland stock) of fin whales with 95% confidence intervals during 1974–2012.*

Since the commencement of regular Icelandic whale surveys in 1987 the fin whale population has increased, especially in the western area (figure 2.34.3). During 1987–2001 the annual population increase reached 4% over the whole EGI area, but 10% between Iceland and Greenland.



Mynd 2.34.4. **LANGREYÐUR**. Skipting Austur-Grænlands/Íslands-stofns (EGI) langreyðar í þrjú undirsvæði.

*Fig. 2.34.4. **FIN WHALE**. Division of the East Greenland/Iceland stock of fin whales into three subareas.*

The results of the 2007 survey indicate that 20 600 fin whales (95% confidence interval 15 100–26 500) were in the EGI area. This estimate is not significantly different to that from 2001. In the period 2007–2009 the IWC Scientific Committee conducted a formal assessment of the fin whale populations in the North Atlantic according to the RMP. Due to uncertainty about the population structure the committee opted for a precautionary approach and based their recommendation on the theory that a subpopulation was present on the traditional whaling grounds west of Iceland (area B in figure 2.34.4). The results of this assessment agree with older assessments, that the EGI population is near the size it was before whaling began in the region. A special working group within the IWC discussed the status and potential yield of the fin whale population in Icelandic waters in 2010 and the Scientific Committee of NAMMCO performed an assessment of the population in April, 2010. The estimate of potential yield is based on the RMP and takes into account the surveys from 1987, 1989, 1995, 2001 and 2007. According to the assessment, annual whaling of up to 154 fin whales is sustainable on the traditional whaling grounds west of Iceland (area B in figure 2.34.1) and is consistent with a precautionary approach.

In accordance with management advice of NAMMCO, the MRI recommended that annual whaling in this area be limited to a maximum of 154 fin whales in 2011 and 2012. No new data have become available that give reason to change the above advice and the MRI recommends that whaling in 2013 and 2014 also be limited to 154 fin whales.

2.34.3.3. Sei whale *(Balaenoptera borealis)*

According to the 1995 survey there were about 9 200 sei whales in the survey area in the North Atlantic, thereof, about 8 800 in the Icelandic EEZ. Due to the southerly distribution of the species the 1989 survey is thought to have covered a larger proportion of the population, or about 10 500 sei whales to the west and southwest of Iceland.

For many decades until 1988 sei whales of the Central North Atlantic population were caught only from Iceland. It is likely that the population sustained this harvest, consisting of only 0.6% of the estimated population. The potential yield of the population has not been formally estimated nor have harvest rules been developed fully enough to allocate a TAC. Such an assessment is, however, on the schedule of the IWC Scientific Committee.

2.35. SEALS *Phocidae*

2.35.1. Seal hunting

Two species of seal are permanent inhabitants of Icelandic waters: harbour seals and grey seals. In addition, there are a few migratory species that come regularly into Icelandic waters.

Seal hunting occurs around the country, in addition to a good number that get caught accidentally in fishing nets (table 3.35.1). In the last century hunting was mostly limited to spring pups (harbour seals) and fall pups (grey seals) for their skins, but older seals and migratory seals were sometimes hunted. The seal hunt decreased sharply in the end of the 1970s following a crash in the foreign market for seal skins. With the formation of the Ring Worm Committee in 1982, which began to pay a bounty for seals, hunting increased again and this time the target was more often older seals. At first, the bounty was paid for any hunted seal but from 1990 only grey seals got the bounty. After this change, hunting of harbour seals dropped off except in 1992 and 1993 when some were taken for scientific sampling. Since 1986 the decline in seal hunting has been steady and since 2002 the recorded seal harvest (including bycatch in fishing boats) has been under 1 000 animals.

There is no data describing the trends of number of seals as bycatch. In seal hunt data from previous years no distinction was made between purposefully hunted seals and numbers killed as bycatch. In addition, usually only seals that were sold or traded for bounty were recorded. Therefore, numbers of animals killed for personal use and bycatch that was not turned in for bounty were not recorded.

All marine mammals that are killed in fishing operations are supposed to be recorded in statutory fishing logs. Since 2002 there has been a special emphasis placed on instructing the crews of gillnet boats about the recording of mammals killed but annually only 2–7% of them report seals in nets. Digital recording of catch and bycatch became available in 2008 but it seems that recording of marine mammals has not improved. In light of this, it is likely that the record of seals as bycatch is a bare minimum estimate .

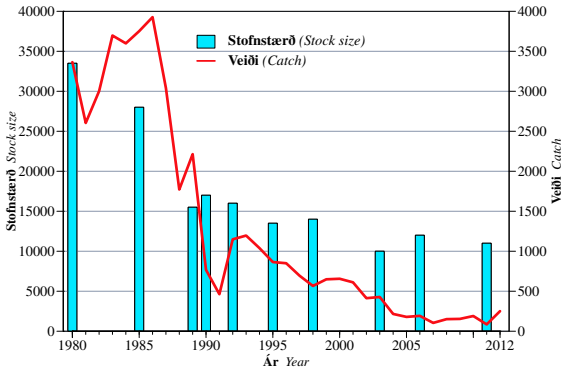
Seal research in Iceland is conducted by the Icelandic Seal Centre with the Marine Research Institute as an advisory body. In 2012 more emphasis was placed on collecting more detailed data about seal hunting; seals as bycatch and seals shot in trout and salmon rivers as well as near aquaculture sites.

In 2012 about 632 seal kills were reported (table 3.35.1), of these 250 were bycatch in fisheries. Harbour seal hunting has decreased since the mid 1980s when kills were more than 6 000 animals per year. Traditional hunting accounted for 100 spring pups and 5 adult animals. In addition, 43 harbour seals were killed in nets. In estuaries, 103 harbour seals were shot. The grey seal hunt took 88 pups and 18 older animals and about 30 grey seals were reported killed in nets. Grey seals shot in coastal waters around nets and aquaculture sites numbered 68. No other species were directly targeted but 6 harp seals and 171 unspecified seals were reported killed in nets. It is important to improve reporting methods in order ot better estimate hunting mortality, status and trends in the populations. As in previous years, Norwegian seal hunting ships were allowed to hunt harp seals in Icelandic waters in 2012. The hunt was conducted far to the north of Iceland and the number killed is reported in Norwegian data.

2.35.2. Status and yield capacity of Icelandic seals

2.35.2.1. Harbour seal (*Phoca vitulina*)

Harbour seals were last counted in July–September of 2011 with an improved method in which the researcher flies over large haul-outs three times and small haul-outs twice. This method is thought to give a more accurate count of harbour seals. The population was estimated at 11 000 animals (95% confidence interval 8 000–16 000), which is unchanged from the summers of 2003 and 2006 (figure 2.35.1). The populations was estimated at 34 thousand animals in the 1980 survey and decreased annually by about 4% on average until 2006. The most rapid decline in the harbour seal population occurred in the 1980s when it decreased but about 10 000 animals. In the 1990s the decline slowed at the same time as hunting decreased. On the other hand, very little is known about mortality due to unintentional killing of seals, greatly increases



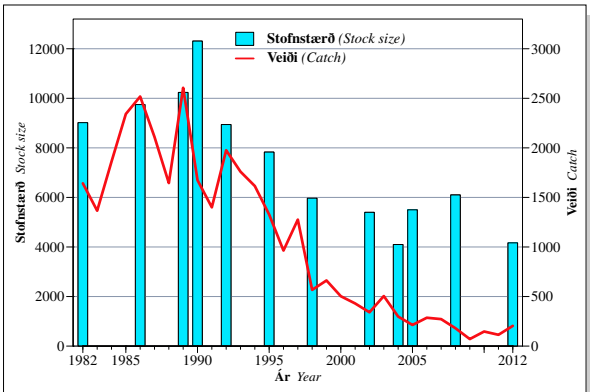
Mynd 2.35.1. **LANDSELUR**. Heildarveiði landsels og áætluð stærð landselastofnsins frá 1980.

*Fig. 2.35.1. **HARBOUR SEAL**. Total catch and estimated stock size since 1980.*

uncertainty about trends in the population. In 2010 management goals were drafted for the harbour seal population in Iceland at the behest of the Ministry of Fisheries. Thereby the choice was made to aim toward keeping the population at or above where it was in 2006 when it was estimated to be 12 thousand animals. If the population drops below this level measures will be immediately taken to reverse the decline if possible. In the coming years the population must be monitored, in part by counting every 2–3 years, in order to follow the management goals. A seal count is planned for the summer of 2013 similar to that conducted in 2011, if funding is available.

2.35.2.2. Grey seal (*Halichoerus grypus*)

Grey seal pups were surveyed by aerial count in 2012 and estimated to be 990 (95% confidence limit 900–1 070), which means a population of 4 200 (95% confidence limit 3 400–5 000). In the 2008/2009 season the pups numbered 1 540 (95% confidence limit 1 480–1 580) and estimated population was 6 100 (95% confidence limit 4 600–7 600). The population has decreased considerably since 2008/2009 and even more since 1990 when it was an estimated 12 000 animals (figure 2.35.2). The survey method was improved in 2005 by counting rookeries more than once and correlating results with development stage of pups. This change needs to be kept in mind during data analysis. While it is clear that hunting pressure in the 1990s was higher than the yield capacity of the species, the pressure has decreased significantly in recent years (figure 2.35.2). The population in 2012 is the smallest since 2004 though the change since 2000 are not statistically significant. It is not clear what has caused this decrease but poaching by fishing vessels is likely and reporting of such kills needs to be improved.



Mynd 2.35.2. **ÚTSELUR**. Heildarveiði og áætluð stofnstærð frá 1982.
*Fig. 2.35.2. **GREY SEAL**. Total catch and estimated stock size since 1982.*

In 2005 the government set a harvest rule for grey seal in Icelandic waters that aims to hold the population at the size it was in 2004 which was about 4 100 animals. If the population decreases significantly measures will be taken to reverse the trend. The population is approaching the threshold where extra measures of control will have to be taken and close monitoring of the population is necessary. A grey seal count is planned for the fall of 2014, if funding is available.

3. TÖFLUR *Tables*

TAFLA 3.1.1
Þorskur. Afli (í tonnum) á Íslandsmiðum 1905–2012.
Cod. *Landings (in tonnes) from Icelandic waters 1905–2012.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*	Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*
1905	44 775	47 355	92 130	1959	284 259	168 245	452 504
1906	48 302	58 441	106 743	1960	295 668	169 355	465 023
1907	53 868	62 838	116 706	1961	233 874	141 042	374 916
1908	58 259	66 704	124 963	1962	221 820	165 056	386 876
1909	56 670	58 831	115 501	1963	232 839	177 211	410 050
1910	71 007	62 595	133 602	1964	273 584	160 021	433 605
1911	75 114	77 762	152 876	1965	233 483	160 153	393 636
1912	75 499	79 477	154 976	1966	223 974	132 781	356 755
1913	79 870	95 110	174 980	1967	193 449	151 573	345 022
1914	53 473	135 025	188 498	1968	227 594	153 476	381 070
1915	66 030	70 069	136 099	1969	281 680	124 731	406 411
1916	68 848	43 975	112 823	1970	302 875	167 882	470 757
1917	61 413	23 305	84 718	1971	250 324	202 728	453 052
1918	62 093	41 073	103 156	1972	225 354	173 174	398 528
1919	76 766	79 967	156 733	1973	238 898	144 548	383 446
1920	82 766	127 972	210 738	1974	238 066	136 704	374 770
1921	90 632	128 735	219 367	1975	264 975	106 016	370 991
1922	103 436	175 568	279 004	1976	280 831	67 018	347 849
1923	127 320	116 328	243 648	1977	329 676	10 374	340 050
1924	161 797	158 004	319 801	1978	319 648	10 742	330 390
1925	166 538	165 698	332 236	1979	360 080	7 984	368 064
1926	126 890	174 304	301 194	1980	428 344	6 000	434 344
1927	164 783	178 295	343 078	1981	460 579	8 080	468 659
1928	177 328	186 943	364 271	1982	382 297	6 090	388 387
1929	201 074	197 738	398 812	1983	293 890	6 166	300 056
1930	261 278	237 157	498 435	1984	281 481	2 341	283 822
1931	224 504	258 898	483 402	1985	322 810	2 457	325 267
1932	208 081	277 207	485 288	1986	365 852	2 781	368 633
1933	247 329	270 946	518 275	1987	389 808	2 445	392 257
1934	223 729	214 840	438 569	1988	375 741	2 335	378 076
1935	182 926	218 965	401 891	1989	353 630	2 324	355 954
1936	102 354	181 232	283 586	1990	333 348	2 042	335 390
1937	111 285	186 531	297 816	1991	306 689	1 871	308 560
1938	131 965	179 351	311 316	1992	266 662	1 105	267 767
1939	136 782	61 569	198 351	1993	251 170	809	251 979
1940	147 347	-	147 347	1994	177 919	890	178 809
1941	156 242	-	156 242	1995	168 685	739	169 424
1942	173 146	-	173 146	1996	181 052	606	181 658
1943	186 017	-	186 017	1997	202 745	408	203 153
1944	216 677	-	216 677	1998	241 545	1 087	242 632
1945	211 849	4 098	215 947	1999	258 658	1 394	260 052
1946	199 165	38 772	237 937	2000	234 362	1 325	235 687
1947	200 242	45 955	246 197	2001	234 085	1 289	235 374
1948	213 177	80 157	293 334	2002	207 466	1 311	208 777
1949	221 419	93 135	314 554	2003	200 443	7 108	207 551
1950	197 433	152 922	350 355	2004	220 057	7 532	227 589
1951	183 252	165 230	348 482	2005	207 972	5 612	213 584
1952	237 314	162 629	399 943	2006	193 413	2 863	196 276
1953	263 516	262 545	526 061	2007	166 912	3 710	170 622
1954	306 191	241 339	547 530	2008	143 785	2 794	146 579
1955	315 438	222 692	538 130	2009	181 309	1 112	182 421
1956	292 586	188 123	480 709	2010	167 632	1 521	169 153
1957	247 087	204 822	451 909	2011	169 638	2 062	171 700
1958	284 407	224 276	508 683	2012	193 846	1 980	195 826

TAFLA 3.1.2

Þorskur. Skipting aflans í fjölda eftir aldri (í milljónum) á árunum 1955–2012.

Cod. *Landings in numbers by age (millions) in the years 1955–2012.*

Ár	Aldur *Age*											
Year	3	4	5	6	7	8	9	10	11	12	13	14
1955	4.790	25.164	46.566	28.287	10.541	5.224	2.467	25.182	2.101	1.202	1.668	0.665
1956	6.709	17.265	31.030	27.793	14.389	4.261	3.429	2.128	16.820	1.552	1.522	1.545
1957	13.240	21.278	17.515	24.569	17.634	12.296	3.568	2.169	1.171	6.822	0.512	1.089
1958	25.237	30.742	14.298	10.859	15.997	15.822	12.021	2.003	2.125	0.771	3.508	0.723
1959	18.394	37.650	23.901	7.682	5.883	8.791	13.003	7.683	0.914	0.990	0.218	1.287
1960	14.830	28.642	27.968	14.120	8.387	6.089	6.393	11.600	3.526	0.692	0.183	0.510
1961	16.507	21.808	19.488	15.034	7.900	6.925	3.969	3.211	6.756	1.202	0.089	0.425
1962	13.514	28.526	18.924	14.650	12.045	4.276	8.809	2.664	1.883	2.988	0.405	0.324
1963	18.507	28.466	19.664	11.314	15.682	7.704	2.724	6.508	1.657	1.030	1.372	0.246
1964	19.287	28.845	18.712	11.620	7.936	18.032	5.040	1.437	2.670	0.655	0.370	1.025
1965	21.658	29.586	24.783	11.706	9.334	6.394	11.122	1.477	0.823	0.489	0.118	0.489
1966	17.910	30.649	20.006	13.872	5.942	7.586	2.320	5.583	0.407	0.363	0.299	0.311
1967	25.945	27.941	24.322	11.320	8.751	2.595	5.490	1.392	1.998	0.109	0.030	0.106
1968	11.933	47.311	22.344	16.277	15.590	7.059	1.571	2.506	0.512	0.659	0.047	0.098
1969	11.149	23.925	45.445	17.397	12.559	14.811	1.590	0.475	0.340	0.064	0.024	0.021
1970	9.876	47.210	23.607	25.451	15.196	12.261	14.469	0.567	0.207	0.147	0.035	0.050
1971	13.060	35.856	45.577	21.135	17.340	10.924	6.001	4.210	0.237	0.069	0.038	0.020
1972	8.973	29.574	30.918	22.855	11.097	9.784	10.538	3.938	1.242	0.119	0.031	0.001
1973	36.538	25.542	27.391	17.045	12.721	3.685	4.718	5.809	1.134	0.282	0.007	0.001
1974	14.846	61.826	21.824	14.413	8.974	6.216	1.647	2.530	1.765	0.334	0.062	0.028
1975	29.301	29.489	44.138	12.088	9.628	3.691	2.051	0.752	0.891	0.416	0.060	0.046
1976	23.578	39.790	21.092	24.395	5.803	5.343	1.297	0.633	0.205	0.155	0.065	0.029
1977	2.614	42.659	32.465	12.162	13.017	2.809	1.773	0.421	0.086	0.024	0.006	0.002
1978	5.999	16.287	43.931	17.626	8.729	4.119	0.978	0.348	0.119	0.048	0.015	0.027
1979	7.186	28.427	13.772	34.443	14.130	4.426	1.432	0.350	0.168	0.043	0.024	0.004
1980	4.348	28.530	32.500	15.119	27.090	7.847	2.228	0.646	0.246	0.099	0.025	0.004
1981	2.118	13.297	39.195	23.247	12.710	26.455	4.804	1.677	0.582	0.228	0.053	0.068
1982	3.285	20.812	24.462	28.351	14.012	7.666	11.517	1.912	0.327	0.094	0.043	0.011
1983	3.554	10.910	24.305	18.944	17.382	8.381	2.054	2.733	0.514	0.215	0.064	0.037
1984	6.750	31.553	19.420	15.326	8.082	7.336	2.680	0.512	0.538	0.195	0.090	0.036
1985	6.457	24.552	35.392	18.267	8.711	4.201	2.264	1.063	0.217	0.233	0.102	0.038
1986	20.642	20.330	26.644	30.839	11.413	4.441	1.771	0.805	0.392	0.103	0.076	0.044
1987	11.002	62.130	27.192	15.127	15.695	4.159	1.463	0.592	0.253	0.142	0.046	0.058
1988	6.713	39.323	55.895	18.663	6.399	5.877	1.345	0.455	0.305	0.157	0.114	0.025
1989	2.605	27.983	50.059	31.455	6.010	1.915	0.881	0.225	0.107	0.086	0.038	0.005
1990	5.785	12.313	27.179	44.534	17.037	2.573	0.609	0.322	0.118	0.050	0.015	0.020
1991	8.554	25.131	15.491	21.514	25.038	6.364	0.903	0.243	0.125	0.063	0.011	0.012
1992	12.217	21.708	26.524	11.413	10.073	8.304	2.006	0.257	0.046	0.032	0.009	0.008
1993	20.500	33.078	15.195	13.281	3.583	2.785	2.707	1.181	0.180	0.034	0.011	0.013
1994	6.160	24.142	19.666	6.968	4.393	1.257	0.599	0.508	0.283	0.049	0.018	0.006
1995	10.770	9.103	16.829	13.066	4.115	1.596	0.313	0.184	0.156	0.141	0.029	0.008
1996	5.356	14.886	7.372	12.307	9.429	2.157	0.837	0.208	0.076	0.065	0.055	0.005
1997	1.722	16.442	17.298	6.711	7.379	5.958	1.147	0.493	0.126	0.028	0.037	0.021
1998	3.458	7.707	25.394	20.167	5.893	3.856	2.951	0.500	0.196	0.055	0.033	0.013
1999	2.525	19.554	15.226	24.622	12.966	2.795	1.489	0.748	0.140	0.046	0.010	0.005
2000	10.493	6.581	29.080	11.227	11.390	5.714	1.104	0.567	0.314	0.074	0.022	0.006
2001	11.338	25.040	9.311	19.471	5.620	3.929	2.017	0.452	0.202	0.118	0.013	0.009
2002	5.934	18.482	24.297	6.874	8.943	2.227	1.353	0.689	0.123	0.040	0.041	0.002
2003	3.950	16.160	21.874	18.145	5.063	4.419	1.124	0.401	0.172	0.034	0.020	0.015
2004	1.778	19.184	25.003	17.384	9.926	2.734	2.023	0.481	0.126	0.062	0.014	0.005
2005	5.102	5.125	26.749	16.980	8.339	4.682	1.292	0.913	0.203	0.089	0.025	0.002
2006	3.258	12.884	8.438	22.041	10.418	4.523	2.194	0.497	0.336	0.067	0.027	0.002
2007	2.074	11.961	15.948	8.280	9.593	5.428	2.205	1.229	0.366	0.198	0.053	0.010
2008	2.616	4.850	12.585	11.973	5.238	4.582	2.040	0.831	0.308	0.053	0.037	0.004
2009	3.660	8.150	9.480	17.330	10.060	3.910	2.290	0.770	0.310	0.090	0.020	0.010
2010	3.174	7.219	9.385	8.692	10.690	5.588	1.599	1.095	0.337	0.197	0.071	0.016
2011	4.230	7.454	9.281	10.419	6.108	6.201	2.595	0.608	0.480	0.166	0.052	0.024
2012	4.070	9.855	10.067	9.707	9.204	4.155	3.153	1.509	0.307	0.276	0.083	0.034

TAFLA 3.1.3

Þorskur. Meðalþyngd í afla eftir aldri (g) á árunum 1955–2013.

Cod. *Weight at age from commercial catches (g) in the years 1955–2013.*

Ár	Aldur *Age*											
Year	3	4	5	6	7	8	9	10	11	12	13	14
1955	827	1307	2157	3617	4638	5657	6635	6168	8746	8829	10086	14584
1956	1080	1600	2190	3280	4650	5630	6180	6970	6830	9290	10965	12954
1957	1140	1710	2520	3200	4560	5960	7170	7260	8300	8290	10350	13174
1958	1210	1810	3120	4510	5000	5940	6640	8290	8510	8840	9360	13097
1959	1110	1950	2930	4520	5520	6170	6610	7130	8510	8670	9980	11276
1960	1060	1720	2920	4640	5660	6550	6910	7140	7970	10240	10100	12871
1961	1020	1670	2700	4330	5530	6310	6930	7310	7500	8510	9840	14550
1962	990	1610	2610	3900	5720	6660	6750	7060	7540	8280	10900	12826
1963	1250	1650	2640	3800	5110	6920	7840	7610	8230	9100	9920	11553
1964	1210	1750	2640	4020	5450	6460	8000	9940	9210	10940	12670	15900
1965	1020	1530	2570	4090	5410	6400	7120	8600	12310	10460	10190	17220
1966	1170	1680	2590	4180	5730	6900	7830	8580	9090	14230	14090	17924
1967	1120	1820	2660	4067	5560	7790	7840	8430	9090	10090	14240	16412
1968	1170	1590	2680	3930	5040	5910	7510	8480	10750	11580	14640	16011
1969	1100	1810	2480	3770	5040	5860	7000	8350	8720	10080	11430	13144
1970	990	1450	2440	3770	4860	5590	6260	8370	10490	12310	14590	21777
1971	1090	1570	2310	2980	4930	5150	5580	6300	8530	11240	14740	17130
1972	980	1460	2210	3250	4330	5610	6040	6100	6870	8950	11720	16000
1973	1030	1420	2470	3600	4900	6110	6670	6750	7430	7950	10170	17000
1974	1050	1710	2430	3820	5240	6660	7150	7760	8190	9780	12380	14700
1975	1100	1770	2780	3760	5450	6690	7570	8580	8810	9780	10090	11000
1976	1350	1780	2650	4100	5070	6730	8250	9610	11540	11430	14060	16180
1977	1259	1911	2856	4069	5777	6636	7685	9730	11703	14394	17456	24116
1978	1289	1833	2929	3955	5726	6806	9041	10865	13068	11982	19062	21284
1979	1408	1956	2642	3999	5548	6754	8299	9312	13130	13418	13540	20072
1980	1392	1862	2733	3768	5259	6981	8037	10731	12301	17281	14893	19069
1981	1180	1651	2260	3293	4483	5821	7739	9422	11374	12784	12514	19069
1982	1006	1550	2246	3104	4258	5386	6682	9141	11963	14226	17287	16590
1983	1095	1599	2275	3021	4096	5481	7049	8128	11009	13972	15882	18498
1984	1288	1725	2596	3581	4371	5798	7456	9851	11052	14338	15273	16660
1985	1407	1971	2576	3650	4976	6372	8207	10320	12197	14683	16175	19050
1986	1459	1961	2844	3593	4635	6155	7503	9084	10356	15283	14540	15017
1987	1316	1956	2686	3894	4716	6257	7368	9243	10697	10622	15894	12592
1988	1438	1805	2576	3519	4930	6001	7144	8822	9977	11732	14156	13042
1989	1186	1813	2590	3915	5210	6892	8035	9831	11986	10003	12611	16045
1990	1290	1704	2383	3034	4624	6521	8888	10592	10993	14570	15732	17290
1991	1309	1899	2475	3159	3792	5680	7242	9804	9754	14344	14172	20200
1992	1289	1768	2469	3292	4394	5582	6830	8127	12679	13410	15715	11267
1993	1392	1887	2772	3762	4930	6054	7450	8641	10901	12517	14742	16874
1994	1443	2063	2562	3659	5117	6262	7719	8896	10847	12874	14742	17470
1995	1348	1959	2920	3625	5176	6416	7916	10273	11022	11407	13098	15182
1996	1457	1930	3132	4141	4922	6009	7406	9772	10539	13503	13689	16194
1997	1484	1877	2878	4028	5402	6386	7344	8537	10797	11533	10428	12788
1998	1230	1750	2458	3559	5213	7737	7837	9304	10759	14903	16651	18666
1999	1241	1716	2426	3443	4720	6352	8730	9946	11088	12535	14995	15151
2000	1308	1782	2330	3252	4690	5894	7809	9203	10240	11172	13172	17442
2001	1499	2050	2649	3413	4766	6508	7520	9055	8769	9526	11210	13874
2002	1294	1926	2656	3680	4720	6369	7808	9002	10422	13402	9008	16893
2003	1265	1790	2424	3505	4455	5037	5980	7819	8802	10712	12152	13797
2004	1257	1771	2323	3312	4269	5394	5872	7397	10808	11569	13767	12955
2005	1194	1712	2374	3435	4392	5201	6200	5495	7211	9909	12944	18151
2006	1070	1614	2185	3052	4347	5177	5382	5769	6258	5688	7301	15412
2007	1083	1556	2144	2754	3920	5255	6272	6481	7142	6530	9724	10143
2008	1162	1627	2318	3120	3846	5367	6771	7648	8282	11181	14266	17320
2009	1109	1680	2204	3206	4098	4884	6744	8505	10126	12108	12471	15264
2010	1131	1769	2334	3161	4422	5498	6552	7945	8913	10090	10417	13489
2011	1163	1795	2615	3471	4469	5992	6863	7850	8810	9797	13534	13033
2012	1256	1667	2448	3728	4713	5894	7616	8358	9543	10916	10884	11758
2013[1)]	1241	1736	2383	3479	5028	6454	7936	8362	9547	10921	10889	11763

[1)] Áætlað. *Estimated.*

TAFLA 3.1.4

Þorskur. Meðalþyngd kynþroska þorsks eftir aldri (g) í stofni 1955–2013. Mat á meðalþyngd kynþroska þorsks 4–7 ára er byggð á stofnmælingu botnfiska í mars en fyrir 8 ára og eldri er stuðst við gögn úr afla.

Cod. *Weight at age of mature cod (g) in the stock 1955–2013. For ages 4–7, the estimate is based on data from the groundfish survey in March but age 8 and older are based on commercial catch data.*

Ár	Aldur *Age*										
Year	4	5	6	7	8	9	10	11	12	13	14
1955	1019	1833	3183	4128	5657	6635	6168	8746	8829	10086	14584
1956	1248	1862	2886	4138	5630	6180	6970	6830	9290	10965	12954
1957	1334	2142	2816	4058	5960	7170	7260	8300	8290	10350	13174
1958	1412	2652	3969	4450	5940	6640	8290	8510	8840	9360	13097
1959	1521	2490	3978	4913	6170	6610	7130	8510	8670	9980	11276
1960	1342	2482	4083	5037	6550	6910	7140	7970	1020	10100	12871
1961	1303	2295	3810	4922	6310	6930	7310	0750	8510	9840	14550
1962	1256	2218	3432	5091	6660	6750	7060	7540	8280	10900	12826
1963	1287	2244	3344	4548	6920	7840	7610	8230	9100	9920	11553
1964	1365	2244	3538	4850	6460	8000	9940	9210	10940	12670	15900
1965	1193	2184	3599	4815	6400	7120	8600	12310	10460	10190	17220
1966	1310	2202	3678	5100	6900	7830	8580	9090	14230	14090	17924
1967	1420	2261	3579	4948	7790	7840	8430	9090	10090	14240	16412
1968	1240	2278	3458	4486	5910	7510	8480	10750	11580	14640	16011
1969	1412	2108	3318	4486	5860	7000	8350	8720	10080	11430	13144
1970	1131	2074	3318	4325	5590	6260	8370	10490	12310	14590	21777
1971	1225	1964	2622	4388	5150	5580	6300	8530	11240	14740	17130
1972	1139	1878	2860	3854	5610	6040	6100	6870	8950	11720	16000
1973	1108	2100	3168	4361	6110	6670	6750	7430	7950	10170	17000
1974	1334	2066	3362	4664	6660	7150	7760	8190	9780	12380	14700
1975	1381	2363	3309	4850	6690	7570	8580	8810	9780	10090	11000
1976	1388	2252	3608	4512	6730	8250	9610	11540	11430	14060	16180
1977	1491	2428	3581	5142	6636	7685	9730	11703	14394	17456	24116
1978	1430	2490	3480	5096	6806	9041	10860	13068	11982	19062	21284
1979	1526	2246	3519	4938	6754	8299	9312	13130	13418	13540	20072
1980	1452	2323	3316	4681	6981	8037	10731	12301	17281	14893	19069
1981	1288	1921	2898	3990	5821	7739	9422	11374	12784	12514	19069
1982	1209	1909	2732	3790	5386	6682	9141	11963	14226	17287	16590
1983	1247	1934	2658	3645	5481	7049	8128	11009	13972	15882	18498
1984	1346	2207	3151	3890	5798	7456	9851	11052	14338	15273	16660
1985	1375	1750	2709	3454	6372	8207	10320	12197	14683	16175	19050
1986	1597	2882	3246	4581	6155	7503	9084	10356	15283	14540	15017
1987	1584	2423	3522	4905	6257	7368	9243	10697	10622	15894	12592
1988	1475	2261	3277	4398	6001	7144	8822	9977	11732	14156	13042
1989	1494	2338	3429	4686	6892	8035	9831	11986	10003	12611	16045
1990	1035	2170	2798	4422	6521	8888	10592	10993	14570	15732	17290
1991	1283	2039	2747	3397	5680	7242	9804	9754	14344	14172	20200
1992	1336	2094	3029	3753	5582	6830	8127	12679	13410	15715	11267
1993	1363	2309	3235	4109	6054	7450	8641	10901	12517	14742	16874
1994	1728	2254	3340	4514	6262	7719	8896	10847	12874	14742	17470
1995	1635	2345	3186	4489	6416	7916	10273	11022	11407	13098	15182
1996	1753	2490	3531	4273	6009	7406	9772	10539	13503	13689	16194
1997	1347	2267	3746	5245	6386	7344	8537	10797	11533	10428	12788
1998	1516	2261	3263	4474	7737	7837	9304	10759	14903	16651	18666
1999	1467	1932	2996	3961	6352	8730	9946	11088	12535	14995	15151
2000	1355	1915	2881	4319	5894	7809	9203	10240	11172	13172	17442
2001	1550	2071	2694	4131	6508	7520	9055	8769	9526	11210	13874
2002	1590	2259	3120	3984	6369	7808	9002	10422	13402	9008	16893
2003	1338	2215	2988	4169	5037	5980	7819	8802	10712	12152	13797
2004	1453	2099	3057	3757	5394	5872	7397	10808	11569	13767	12955
2005	1119	1897	2963	3874	5201	6200	5495	7211	9909	12944	18151
2006	1383	1998	2905	4385	5177	5382	5769	6258	5688	7301	15412
2007	1264	2022	2580	4078	5255	6272	6481	7142	6530	9724	10143
2008	1841	2227	2924	3920	5367	6771	7648	8282	11181	14266	17320
2009	1440	2027	2871	3909	4884	6744	8505	10126	12108	12471	15264
2010	1586	2153	3150	4207	5498	6552	7945	8913	10090	10417	13489
2011	2466	2665	3215	4548	5995	6866	8222	9279	11447	10291	18822
2012	1700	2604	3713	4513	6020	8061	8850	10786	11773	15557	11739
2013[1)]	2324	2990	3835	5211	6539	8280	9498	10685	12849	12182	19149

[1)] Áætlað. *Estimated.*

TAFLA 3.1.5

Þorskur. Hlutfall kynþroska eftir aldri í stofnmælingu að vorlagi 1985–2013.

Cod. *Sexual maturity at age in the spring survey in the years 1985–2013.*

Ár	Aldur *Age*											
Year	3	4	5	6	7	8	9	10	11	12	13	14
1985	0.00	0.02	0.19	0.41	0.50	0.74	0.57	1.00	1.00	1.00	1.00	1.00
1986	0.00	0.02	0.15	0.40	0.68	0.73	0.94	0.96	0.99	1.00	1.00	1.00
1987	0.00	0.03	0.09	0.36	0.49	0.89	0.78	1.00	0.98	1.00	1.00	1.00
1988	0.01	0.03	0.23	0.51	0.45	0.68	0.94	0.95	0.97	0.82	1.00	1.00
1989	0.01	0.03	0.14	0.37	0.65	0.65	0.63	0.99	1.00	0.90	0.86	1.00
1990	0.01	0.01	0.16	0.44	0.58	0.80	0.81	0.99	1.00	1.00	1.00	1.00
1991	0.00	0.06	0.15	0.37	0.64	0.79	0.68	0.84	1.00	1.00	1.00	1.00
1992	0.00	0.06	0.27	0.40	0.81	0.92	0.89	1.00	1.00	1.00	1.00	1.00
1993	0.01	0.09	0.27	0.46	0.69	0.80	0.84	0.97	1.00	1.00	1.00	1.00
1994	0.01	0.11	0.34	0.59	0.70	0.92	0.70	0.85	0.99	1.00	1.00	1.00
1995	0.01	0.11	0.38	0.53	0.75	0.79	0.86	1.00	1.00	1.00	1.00	1.00
1996	0.00	0.03	0.19	0.50	0.65	0.73	0.81	1.00	1.00	0.99	0.97	1.00
1997	0.01	0.04	0.25	0.42	0.69	0.79	0.80	0.93	1.00	0.91	1.00	1.00
1998	0.00	0.06	0.21	0.49	0.78	0.81	0.81	0.93	1.00	1.00	1.00	1.00
1999	0.01	0.04	0.24	0.52	0.65	0.84	0.69	0.99	1.00	1.00	1.00	1.00
2000	0.00	0.07	0.25	0.51	0.61	0.87	1.00	0.98	1.00	1.00	1.00	1.00
2001	0.00	0.04	0.26	0.59	0.75	0.74	0.86	0.99	1.00	1.00	1.00	1.00
2002	0.01	0.09	0.32	0.66	0.76	0.92	0.55	0.98	1.00	1.00	1.00	1.00
2003	0.01	0.05	0.22	0.52	0.87	0.80	0.86	1.00	1.00	1.00	1.00	1.00
2004	0.00	0.04	0.25	0.55	0.63	0.84	0.82	0.99	1.00	1.00	1.00	1.00
2005	0.01	0.11	0.28	0.50	0.79	0.81	0.95	0.99	1.00	1.00	1.00	1.00
2006	0.00	0.02	0.29	0.45	0.75	0.87	0.74	1.00	1.00	1.00	1.00	1.00
2007	0.01	0.03	0.16	0.50	0.69	0.80	0.86	0.96	0.92	1.00	1.00	1.00
2008	0.00	0.04	0.28	0.55	0.73	0.83	0.85	0.95	0.74	1.00	1.00	1.00
2009	0.00	0.02	0.13	0.46	0.69	0.88	0.74	0.63	0.89	1.00	1.00	1.00
2010	0.00	0.02	0.06	0.38	0.82	0.87	0.93	0.82	0.58	1.00	1.00	1.00
2011	0.00	0.01	0.14	0.43	0.73	0.92	0.94	0.96	1.00	1.00	1.00	1.00
2012	0.00	0.03	0.13	0.41	0.73	0.89	0.96	0.85	1.00	1.00	1.00	1.00
2013	0.00	0.01	0.06	0.34	0.74	0.92	0.96	1.00	1.00	1.00	1.00	1.00

TAFLA 3.1.6.
Þorskur. Aldurskiptar vísitölur (í fjölda) úr stofnmælingum botnfiska.
Cod. *Age disaggregated indices (in numbers) from groundfish trawl surveys.*

Stofnmæling í mars. *March survey.*

Ár	Aldur *Age*								
Year	1	2	3	4	5	6	7	8	9
1985	16.54	110.48	35.41	48.25	64.59	22.95	15.26	5.04	3.39
1986	15.07	60.58	95.95	22.46	21.51	27.44	7.17	2.80	0.93
1987	3.65	28.29	104.44	82.67	21.41	12.76	12.94	2.79	0.98
1988	3.45	7.06	72.51	103.56	69.54	8.39	6.41	7.23	0.67
1989	4.04	16.40	22.06	79.90	74.16	39.11	4.85	1.71	1.42
1990	5.56	11.79	26.10	14.18	27.91	35.22	16.74	1.75	0.58
1991	3.95	16.02	18.20	30.24	15.49	18.94	22.45	4.91	0.94
1992	0.71	16.91	33.60	18.95	16.66	6.87	6.35	5.78	1.49
1993	3.57	4.77	30.87	36.79	13.53	10.61	2.42	2.03	1.40
1994	14.40	14.96	9.04	26.91	22.43	6.09	3.96	0.80	0.53
1995	1.08	29.31	24.80	9.06	24.53	18.44	4.02	1.91	0.38
1996	3.72	5.46	42.72	29.71	13.22	15.35	15.10	4.20	1.14
1997	1.18	22.26	13.59	56.82	29.85	9.96	9.47	7.31	0.61
1998	8.07	5.38	30.00	16.19	63.32	29.98	7.00	5.77	3.32
1999	7.40	33.10	7.03	42.64	13.33	24.82	11.99	2.60	1.47
2000	18.89	27.71	55.16	7.00	30.79	8.69	8.82	4.57	0.56
2001	12.29	23.54	36.56	38.39	5.08	15.85	3.55	2.16	0.89
2002	0.91	38.63	41.48	40.67	37.25	7.45	8.98	1.66	0.81
2003	11.18	4.22	46.62	36.91	29.17	17.73	4.11	4.78	1.13
2004	7.01	26.45	8.11	64.57	38.41	27.81	15.92	3.03	3.21
2005	2.69	17.80	41.72	9.97	46.43	25.01	12.12	6.47	1.01
2006	9.10	7.43	25.07	40.55	11.72	31.56	11.62	4.10	1.62
2007	5.67	19.01	9.07	22.87	30.04	10.10	11.39	6.11	2.45
2008	6.75	12.41	23.03	9.86	22.38	22.95	9.44	8.02	3.05
2009	21.97	12.63	16.58	22.80	15.68	26.01	16.69	4.85	3.14
2010	18.69	21.54	18.92	18.12	24.64	14.13	18.35	9.91	3.26
2011	3.58	23.00	27.58	20.14	23.06	26.56	14.66	13.33	5.02
2012	20.37	11.02	39.31	56.94	42.02	31.24	28.36	10.79	7.06
2013	10.93	33.86	18.18	44.44	47.22	25.96	17.22	14.53	7.28

Stofnmæling í október. *October survey.*

Ár	Aldur *Age*										
Year	0	1	2	3	4	5	6	7	8	9	10
1996	0.32	6.69	3.57	20.00	13.98	5.40	7.44	6.26	1.60	0.31	0.09
1997	2.13	0.67	16.89	6.83	29.57	15.76	4.09	3.62	2.36	0.25	0.17
1998	6.75	5.92	2.63	15.62	7.36	16.01	16.03	5.20	2.24	1.27	0.20
1999	12.00	8.61	14.54	5.68	23.38	7.42	9.94	4.05	0.59	0.34	0.36
2000	3.91	4.60	13.17	15.25	3.71	11.15	3.49	2.61	1.11	0.34	0.28
2001	0.31	7.11	11.51	19.53	21.13	3.30	6.73	1.60	0.76	0.17	0.03
2002	1.04	0.92	13.72	16.11	23.39	15.94	5.41	4.77	1.11	0.61	0.08
2003	1.89	5.16	2.68	25.66	16.98	13.22	8.99	1.89	2.55	0.38	0.10
2004	0.37	3.67	16.28	6.92	29.86	18.85	11.73	7.38	1.88	1.65	0.23
2005	0.58	2.15	9.03	20.37	6.82	25.62	10.88	3.86	1.91	0.29	0.31
2006	0.33	4.51	4.52	16.28	23.04	7.67	13.93	6.12	2.05	1.02	0.16
2007	0.29	3.73	9.82	4.93	11.73	15.68	6.34	5.91	3.14	0.76	0.50
2008	2.44	5.30	11.88	15.19	7.66	17.57	18.51	5.67	5.61	1.50	0.79
2009	0.93	7.04	8.30	13.14	18.11	12.39	16.46	10.22	3.15	2.75	0.84
2010	0.59	10.78	18.82	16.18	15.52	17.96	9.81	11.21	6.81	2.29	1.20
2011	-	-	-	-	-	-	-	-	-	-	-
2012	1.12	7.30	10.33	23.30	20.44	12.28	10.34	9.89	5.47	3.21	1.65

TAFLA 3.1.7

Þorskur. Fjöldi þriggja ára nýliða í milljónum, hrygningar- og viðmiðunarstofn í þús. tonna, afli í þús. tonna, veiðihlutfall (afli/viðmiðunarstofn) og fiskveiðidánartala (meðaltal fyrir 5–10 ára). Nýliðun telur einnig þann hluta árgangsins sem ólst upp við Grænland og gekk síðar á Íslandsmið. Hrygningarstofn táknar hrygningarstofn á Íslandsmiðum á hverjum tíma.

Cod. *Recruitment as 3-year-olds in millions, spawning stock and reference biomass in thous. tonnes, landings in thous. tonnes, harvest rate (landings/reference biomass), and fishing mortality (average for ages 5–10). Recruitment includes young fish of Icelandic origin at Greenland that migrated back to Icelandic grounds. Spawning stock refers to Icelandic waters.*

Ár *Year*	Nýliðun *Recruitment*	Hrygningarstofn[1)] *SSB*	Viðmiðunarstofn[2)] *Biomass 4+*	Afli *Landings*	Veiðihlutfall *Harvest rate*	Fiskveiðidánartala *Fishing mortality*
1955	152	940	2359	545	22%	0.29
1956	153	794	2083	487	23%	0.29
1957	171	774	1880	455	24%	0.31
1958	221	874	1866	517	27%	0.35
1959	289	853	1828	459	25%	0.32
1960	154	709	1754	470	27%	0.37
1961	193	467	1496	377	25%	0.36
1962	129	569	1492	389	26%	0.38
1963	178	508	1316	409	31%	0.46
1964	204	451	1219	437	35%	0.55
1965	216	318	1023	387	36%	0.58
1966	229	277	1032	353	33%	0.59
1967	320	256	1103	336	30%	0.56
1968	172	222	1223	382	31%	0.72
1969	248	314	1326	403	31%	0.56
1970	181	331	1337	475	35%	0.61
1971	189	242	1098	444	39%	0.68
1972	139	222	997	395	40%	0.69
1973	273	245	844	369	43%	0.70
1974	179	187	918	368	39%	0.76
1975	261	168	895	365	41%	0.81
1976	367	138	955	346	36%	0.75
1977	143	199	1289	340	26%	0.59
1978	228	212	1297	330	26%	0.48
1979	243	304	1397	366	26%	0.45
1980	140	357	1490	432	29%	0.49
1981	140	264	1242	465	36%	0.66
1982	132	167	970	380	38%	0.73
1983	233	130	791	298	37%	0.71
1984	139	141	914	282	32%	0.64
1985	140	172	928	323	35%	0.67
1986	330	198	854	365	42%	0.77
1987	261	150	1030	390	37%	0.86
1988	176	172	1033	378	37%	0.89
1989	89	171	1003	363	36%	0.72
1990	130	214	841	335	41%	0.70
1991	107	161	698	308	44%	0.80
1992	175	153	550	265	47%	0.85
1993	135	124	595	251	42%	0.87
1994	78	154	576	178	31%	0.63
1995	151	179	557	169	30%	0.51
1996	165	159	670	181	27%	0.51
1997	88	190	783	203	26%	0.55
1998	162	211	720	244	34%	0.65
1999	71	184	731	260	36%	0.75
2000	172	167	590	235	40%	0.76
2001	162	162	688	234	34%	0.75
2002	159	197	729	208	29%	0.63
2003	178	186	740	208	28%	0.58
2004	80	202	800	227	28%	0.58
2005	155	232	723	213	30%	0.55
2006	135	221	700	196	28%	0.54
2007	95	204	680	170	25%	0.51
2008	135	268	701	146	21%	0.39
2009	122	254	798	181	23%	0.38
2010	129	302	847	172	20%	0.33
2011	169	369	938	177	18%	0.28
2012	175	423	1054	194	17%	0.28
2013	119	479	1173			
2014	183					
2015	151					

[1)] Hrygningarstofn á hrygningartíma, reiknaður út frá meðalþyngdum og kynþroskahlutfalli fengnum úr stofnmælingu í mars.
Spawning stock biomass at the time of spawning, calculated using mean weights and maturity from spring survey.

[2)] Stofn 4 ára og eldri í upphafi árs, reiknaður út frá meðalþyngdum í afla.
Biomass of ages 4+ in the beginning of the year, calculated using mean weights from catch data.

TAFLA 3.1.8.

Þorskur. Stofnstærð í fjölda eftir aldri (í milljónum) 1955–2012. Feitletraðar tölur sýna fjölda að meðtalinni áætlaðri Grænlandsgöngu.

Cod. *Stock abundance in numbers by age (millions) 1955–2012. Numbers in boldface include estimated immigration from Greenland.*

Ár	Aldur *Age*													
Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1955	255	187	152	218	212	115	36	25	13	87	9.2	7.8	8.1	2.6
1956	329	208	153	120	150	135	72	22	15	8	51.7	5.4	4.7	4.8
1957	431	270	171	119	82	96	85	44	13	9	4.6	29.6	3.2	2.7
1958	230	353	221	129	79	51	60	52	**35**	8	5.1	2.6	17.4	1.9
1959	288	189	289	161	82	48	31	35	**52**	19	4.1	2.7	1.5	10.3
1960	192	236	154	216	105	51	30	19	21	**37**	10.6	2.3	1.6	1.0
1961	265	157	193	114	140	64	31	18	10	11	19.1	5.4	1.3	1.0
1962	305	217	129	144	75	89	40	18	**24**	6	5.7	10.0	3.1	0.8
1963	323	249	178	94	92	46	56	23	10	12	2.7	2.9	5.6	2.0
1964	342	264	204	128	58	54	28	31	12	**4**	5.2	1.2	1.5	3.5
1965	478	280	216	147	78	33	31	15	14	5	1.6	1.8	0.5	0.8
1966	257	391	229	157	91	44	18	16	7	6	1.6	0.6	0.8	0.3
1967	369	210	320	171	100	53	24	9	7	2	1.8	0.5	0.2	0.4
1968	269	302	172	243	111	60	31	12	4	3	0.8	0.6	0.2	0.1
1969	281	220	248	130	155	65	33	**41**	5	1	0.7	0.2	0.2	0.1
1970	208	230	181	192	85	92	37	**33**	18	2	0.4	0.2	0.1	0.1
1971	407	170	189	138	120	47	49	18	14	7	0.6	0.1	0.1	0.0
1972	267	334	139	141	83	61	23	22	**23**	5	2.2	0.2	0.0	0.0
1973	389	219	273	104	86	42	29	10	9	9	1.6	0.6	0.1	0.0
1974	548	319	179	199	62	43	20	12	4	3	2.7	0.5	0.2	0.0
1975	214	449	261	131	118	31	20	8	4	1	0.9	0.7	0.1	0.1
1976	340	175	367	192	79	58	14	8	3	1	0.3	0.2	0.2	0.1
1977	363	278	143	281	121	42	27	6	3	1	0.4	0.1	0.1	0.1
1978	209	297	228	114	190	71	22	12	2	1	0.3	0.2	0.0	0.0
1979	209	171	243	181	78	117	41	11	5	1	0.5	0.2	0.1	0.0
1980	196	171	140	194	125	49	**72**	20	5	3	0.5	0.3	0.1	0.1
1981	348	161	140	111	133	75	27	**47**	9	2	1.3	0.3	0.1	0.1
1982	207	285	132	112	77	77	38	12	17	3	0.9	0.5	0.1	0.1
1983	209	170	233	105	76	42	36	15	4	5	1.1	0.3	0.2	0.1
1984	492	171	139	187	72	43	20	15	5	1	1.9	0.4	0.1	0.1
1985	389	403	140	110	125	40	21	8	5	2	0.5	0.8	0.2	0.1
1986	262	319	330	109	71	67	19	8	3	2	0.8	0.2	0.4	0.1
1987	133	214	261	254	69	35	27	7	3	1	0.8	0.3	0.1	0.2
1988	195	109	176	202	158	32	13	9	2	1	0.4	0.3	0.1	0.0
1989	159	159	89	137	128	77	12	4	2	1	0.3	0.1	0.1	0.1
1990	260	130	130	70	88	**100**	33	4	1	1	0.2	0.1	0.1	0.1
1991	202	213	107	102	45	45	42	12	2	1	0.4	0.1	0.0	0.0
1992	116	165	175	80	61	21	16	14	4	1	0.2	0.1	0.0	0.0
1993	225	95	135	129	48	28	7	5	4	1	0.2	0.1	0.1	0.0
1994	247	184	78	97	77	22	10	2	2	1	0.4	0.1	0.0	0.0
1995	132	202	151	58	62	43	11	4	1	1	0.5	0.2	0.0	0.0
1996	241	108	165	116	39	37	23	5	2	0	0.3	0.3	0.1	0.0
1997	106	197	88	131	81	24	20	11	2	1	0.2	0.1	0.1	0.0
1998	256	86	162	70	93	50	13	9	5	1	0.4	0.1	0.1	0.1
1999	241	210	71	129	49	54	24	5	3	2	0.3	0.1	0.0	0.0
2000	238	197	172	55	88	27	23	9	2	1	0.6	0.1	0.0	0.0
2001	266	194	162	133	38	49	12	9	3	1	0.4	0.2	0.0	0.0
2002	119	218	159	124	90	21	22	5	3	1	0.2	0.1	0.1	0.0
2003	231	98	178	125	86	53	11	10	2	1	0.3	0.1	0.0	0.0
2004	201	189	80	142	88	51	26	5	4	1	0.4	0.1	0.0	0.0
2005	142	165	155	63	100	52	24	12	2	2	0.3	0.2	0.1	0.0
2006	201	116	135	123	46	61	26	12	5	1	0.7	0.1	0.1	0.0
2007	183	165	95	107	89	29	32	13	5	2	0.4	0.3	0.1	0.0
2008	192	150	135	76	79	58	16	16	6	2	0.9	0.1	0.1	0.0
2009	253	158	122	108	57	**64**	36	9	8	3	1.1	0.5	0.1	0.1
2010	261	207	129	97	81	39	39	20	5	4	1.5	0.6	0.2	0.0
2011	177	214	169	103	73	56	25	22	11	3	2.3	0.9	0.3	0.2
2012	273	145	175	135	78	52	37	15	13	6	1.5	1.5	0.6	0.2
2013	226	224	119	140	101	54	34	22	8	7	3.8	1.0	1.0	0.4

TAFLA 3.1.9
Þorskur. Veiðidánartala eftir aldri á árunum 1955–2012.
Cod. *Fishing mortality by age in the years 1955–2012.*

Ár	Aldur *Age*											
Year	3	4	5	6	7	8	9	10	11	12	13	14
1955	0.04	0.17	0.25	0.27	0.30	0.30	0.28	0.32	0.32	0.31	0.32	0.32
1956	0.05	0.18	0.25	0.26	0.29	0.30	0.30	0.34	0.36	0.34	0.33	0.33
1957	0.08	0.21	0.27	0.27	0.30	0.33	0.33	0.36	0.36	0.33	0.30	0.30
1958	0.11	0.25	0.30	0.29	0.32	0.37	0.40	0.44	0.44	0.39	0.33	0.33
1959	0.09	0.23	0.28	0.26	0.30	0.34	0.35	0.40	0.38	0.32	0.23	0.23
1960	0.10	0.23	0.29	0.29	0.34	0.40	0.43	0.48	0.48	0.39	0.27	0.27
1961	0.09	0.23	0.26	0.26	0.33	0.40	0.42	0.46	0.44	0.35	0.23	0.23
1962	0.11	0.25	0.28	0.26	0.35	0.42	0.47	0.51	0.49	0.38	0.24	0.24
1963	0.13	0.28	0.33	0.31	0.38	0.49	0.59	0.65	0.63	0.46	0.29	0.29
1964	0.13	0.29	0.37	0.36	0.43	0.57	0.74	0.81	0.83	0.61	0.39	0.39
1965	0.12	0.28	0.38	0.40	0.47	0.60	0.74	0.85	0.88	0.65	0.43	0.43
1966	0.09	0.25	0.34	0.38	0.49	0.62	0.78	0.92	1.01	0.79	0.53	0.53
1967	0.08	0.23	0.30	0.34	0.48	0.61	0.75	0.88	0.93	0.72	0.46	0.46
1968	0.08	0.25	0.34	0.41	0.58	0.77	1.04	1.20	1.36	1.08	0.74	0.74
1969	0.06	0.23	0.32	0.35	0.50	0.61	0.72	0.84	0.87	0.71	0.44	0.44
1970	0.07	0.27	0.39	0.43	0.55	0.65	0.76	0.89	0.95	0.80	0.52	0.52
1971	0.09	0.31	0.48	0.53	0.62	0.72	0.80	0.96	1.03	0.88	0.58	0.58
1972	0.09	0.30	0.48	0.55	0.65	0.73	0.79	0.96	1.06	0.91	0.60	0.60
1973	0.12	0.32	0.49	0.56	0.67	0.75	0.80	0.95	1.04	0.90	0.59	0.59
1974	0.11	0.32	0.50	0.58	0.70	0.83	0.92	1.06	1.18	1.03	0.70	0.70
1975	0.11	0.31	0.50	0.60	0.72	0.88	1.02	1.13	1.25	1.10	0.77	0.77
1976	0.07	0.26	0.43	0.55	0.70	0.85	0.95	1.01	1.06	0.94	0.65	0.65
1977	0.03	0.20	0.33	0.43	0.61	0.72	0.73	0.74	0.70	0.63	0.41	0.41
1978	0.03	0.17	0.28	0.35	0.53	0.60	0.55	0.55	0.48	0.45	0.28	0.28
1979	0.03	0.17	0.27	0.34	0.50	0.57	0.50	0.49	0.42	0.39	0.25	0.25
1980	0.03	0.17	0.31	0.39	0.54	0.62	0.56	0.55	0.47	0.44	0.29	0.29
1981	0.02	0.18	0.35	0.49	0.65	0.82	0.85	0.82	0.75	0.69	0.52	0.52
1982	0.03	0.19	0.39	0.56	0.70	0.90	0.96	0.87	0.75	0.67	0.51	0.51
1983	0.02	0.18	0.38	0.56	0.71	0.88	0.91	0.85	0.73	0.67	0.52	0.52
1984	0.04	0.20	0.38	0.53	0.67	0.81	0.75	0.70	0.60	0.56	0.43	0.43
1985	0.05	0.23	0.42	0.58	0.71	0.83	0.76	0.70	0.59	0.56	0.44	0.44
1986	0.06	0.26	0.52	0.71	0.82	0.95	0.87	0.77	0.66	0.61	0.48	0.48
1987	0.06	0.27	0.55	0.82	0.90	1.06	0.99	0.85	0.74	0.69	0.57	0.57
1988	0.05	0.26	0.52	0.79	0.92	1.10	1.08	0.94	0.87	0.83	0.71	0.71
1989	0.04	0.24	0.46	0.65	0.79	0.89	0.80	0.72	0.64	0.62	0.51	0.51
1990	0.05	0.25	0.47	0.66	0.79	0.86	0.75	0.68	0.61	0.60	0.48	0.48
1991	0.09	0.30	0.56	0.81	0.88	0.94	0.84	0.77	0.70	0.68	0.57	0.57
1992	0.10	0.32	0.60	0.87	0.92	1.00	0.89	0.80	0.73	0.70	0.60	0.60
1993	0.14	0.31	0.55	0.80	0.89	1.03	1.02	0.93	0.89	0.85	0.75	0.75
1994	0.09	0.24	0.38	0.53	0.68	0.76	0.71	0.69	0.64	0.63	0.54	0.54
1995	0.06	0.20	0.32	0.42	0.57	0.62	0.56	0.57	0.52	0.52	0.43	0.43
1996	0.04	0.16	0.28	0.41	0.56	0.62	0.58	0.59	0.54	0.54	0.46	0.46
1997	0.03	0.15	0.28	0.42	0.58	0.67	0.65	0.67	0.63	0.62	0.54	0.54
1998	0.03	0.15	0.33	0.52	0.66	0.78	0.81	0.81	0.79	0.77	0.71	0.71
1999	0.04	0.18	0.40	0.65	0.75	0.87	0.92	0.89	0.87	0.85	0.79	0.79
2000	0.06	0.18	0.39	0.63	0.75	0.89	0.96	0.95	0.95	0.92	0.88	0.88
2001	0.07	0.19	0.38	0.58	0.70	0.85	0.98	1.00	1.02	0.99	0.96	0.96
2002	0.04	0.16	0.34	0.48	0.60	0.70	0.81	0.86	0.86	0.84	0.81	0.81
2003	0.03	0.15	0.33	0.50	0.57	0.64	0.69	0.75	0.73	0.74	0.69	0.69
2004	0.03	0.14	0.33	0.53	0.58	0.65	0.68	0.73	0.71	0.72	0.67	0.67
2005	0.03	0.13	0.29	0.48	0.55	0.62	0.66	0.71	0.69	0.71	0.66	0.66
2006	0.03	0.12	0.26	0.46	0.54	0.62	0.67	0.72	0.71	0.72	0.68	0.68
2007	0.03	0.11	0.23	0.38	0.49	0.60	0.66	0.70	0.73	0.70	0.69	0.69
2008	0.02	0.09	0.18	0.29	0.40	0.47	0.48	0.50	0.48	0.46	0.42	0.42
2009	0.03	0.09	0.18	0.30	0.40	0.47	0.46	0.46	0.42	0.40	0.35	0.35
2010	0.03	0.08	0.16	0.25	0.36	0.42	0.39	0.39	0.35	0.33	0.28	0.28
2011	0.03	0.08	0.15	0.23	0.32	0.37	0.32	0.31	0.26	0.24	0.19	0.19
2012	0.03	0.08	0.15	0.23	0.32	0.37	0.32	0.31	0.25	0.23	0.18	0.18

TAFLA 3.1.10
Þorskur. Forsendur í framreikningum á þróun stofnsins árin 2013–2014.
Náttúrulegur dánarstuðull, M=0.2.
Cod. *Input parameters for catch and stock projection for the years 2013–2014.*
Natural mortality coefficient, M=0.2.

Aldur *Age*	Stofnstærð *Stock size*	Veiðimynstur *Selectivity*	Meðalþyngd (kg) í afla *Mean weight (kg) in catch*	Meðalþyngd (kg) í hrygningarstofni *Mean weight (kg) in spawning stock*	Hlutfall kynþroska *Maturity at age*
	2013	2013–2014	2013–2014	2013–2014	2013–2014
3	118.966	0.090	1.241	0.944	0.003
4	139.548	0.283	1.736	2.324	0.008
5	101.461	0.519	2.383	2.990	0.062
6	54.390	0.799	3.479	3.835	0.344
7	33.515	1.116	5.028	5.211	0.739
8	21.895	1.295	6.454	6.539	0.922
9	8.266	1.147	7.936	8.280	0.958
10	7.470	1.125	8.362	9.498	1.000
11	3.797	0.828	9.547	10.685	1.000
12	0.956	0.828	10.921	12.849	1.000
13	0.956	0.828	10.889	15.182	1.000
14	0.379	0.828	11.763	19.149	1.000

Stofnstærð:	Stofnstærð í milljónum fiska í ársbyrjun 2013.
Veiðimynstur:	Hlutfallsleg veiðidánartala hvers aldursflokks. Meðaltal áranna 2010–2012.
Hlutfall kynþroska:	Kynþroskahlutföll árið 2013.
Meðalþyngd:	Meðalþyngd eftir aldri 2013 er byggð á spáðum gildum út frá SMB mælingum frá 2013.
Stock size:	*Stock size in millions in 2013.*
Selectivity:	*Relative fishing mortality on each age group. Average for the years 2010–2012.*
Maturity at age:	*Maturity at age in 2013.*
Mean weight:	*Mean weight at age in the catches are estimated from survey weights in 2013.*

TAFLA 3.1.11.
Þorskur. Mat á stærð árganga við þriggja ára aldur og árlegt endurmat.
Cod. *Retrospective pattern of recruitment estimates at age 3 (in millions).*

Úttektarár *Year of asessment*	Stærð árganga við þriggja ára aldur (í milljónum). *Year class at age 3 (in millions).*																			
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1994	180																			
1995	210	130																		
1996	195	85	150																	
1997	195	90	157	110																
1998	210	100	165	90	170															
1999	228	101	173	83	206	170														
2000	202	88	170	72	212	195	204													
2001	165	81	158	46	185	170	185	175												
2002	165	83	155	54	181	165	175	210	80											
2003	181	82	156	58	185	166	167	207	69	196										
2004	176	84	156	63	183	166	162	198	68	171	153									
2005	167	85	161	67	180	170	168	193	69	168	133	110								
2006	167	85	162	68	177	161	161	190	61	164	127	88	166							
2007	166	86	162	68	176	160	161	185	64	155	123	81	145	135						
2008	166	86	163	70	177	160	162	178	66	147	122	79	137	116	139					
2009	166	86	162	70	176	160	163	179	72	154	135	82	133	115	121	218				
2010	165	88	161	70	172	162	160	180	79	156	132	87	133	127	126	171	177			
2011	165	88	161	71	172	161	159	179	80	156	134	91	133	123	129	168	178	107		
2012	165	88	162	71	172	162	159	179	80	156	134	92	135	125	131	171	174	108	182	
2013	166	88	161	71	172	162	159	178	80	155	135	95	135	122	129	169	174	119	183	151

TAFLA 3.1.12.
Þorskur. Mat á stærð viðmiðunarstofns (þús. tonn) á líðandi stund (feitletrað), spá og árlegt endurmat.
Cod. *Retrospective pattern of reference biomass estimates (ages 4+, thous. tonnes).*

Úttektarár *Year of assessment*	Ár *Year*																		
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1994	690																		
1995	760	830																	
1996	814	792	850																
1997	**889**	851	909	897															
1998	950	**975**	1028	956	999														
1999	993	952	**1031**	945	1046	1150													
2000	865	806	843	**756**	866	1007	1140												
2001	786	710	709	527	**577**	638	745	880											
2002	795	722	717	547	640	**680**	756	941	909										
2003	794	720	730	559	663	704	**765**	914	868										
2004	786	715	717	570	680	727	737	**854**	785	861									
2005	785	719	729	583	694	746	767	854	**760**	823	833								
2006	784	718	730	587	694	731	741	818	715	**753**	745	709							
2007	783	717	730	588	693	729	740	807	703	675	**649**	570	574						
2008	783	718	731	591	698	735	748	805	705	668	629	**590**	647	703					
2009	782	718	731	591	696	732	746	805	714	687	663	663	**702**	722	762				
2010	783	720	730	589	686	728	739	801	723	701	679	685	793	**846**	904	1025			
2011	782	720	730	589	687	728	739	799	722	701	680	695	794	840	**969**	1081	1219		
2012	782	720	731	590	687	728	739	799	722	700	680	697	798	849	944	**1070**	1192	1211	
2013	783	720	731	590	688	729	740	800	723	700	680	701	798	847	938	1054	**1173**	1211	1317

TAFLA 3.2.1
Ýsa. Afli (í tonnum) á Íslandsmiðum 1950–2012.
Haddock. *Landings (in tonnes) from Icelandic waters 1950–2012.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*
1950	27 099	39 650	66 749
1951	22 173	33 856	56 029
1952	15 166	31 321	46 487
1953	14 954	39 874	54 828
1954	21 322	41 330	62 652
1955	21 704	43 241	64 945
1956	22 054	40 235	62 289
1957	31 302	45 424	76 726
1958	28 624	41 874	70 498
1959	26 534	38 044	64 578
1960	41 988	45 505	87 493
1961	51 300	50 756	102 056
1962	54 288	65 327	119 615
1963	51 834	50 610	102 444
1964	56 586	42 461	99 047
1965	53 506	45 527	99 033
1966	36 028	24 072	60 100
1967	37 977	22 248	60 225
1968	34 014	17 178	51 192
1969	35 036	11 577	46 613
1970	31 833	12 655	44 488
1971	32 376	13 731	46 107
1972	29 252	10 018	39 270
1973	34 390	11 115	45 505
1974	34 401	8 225	42 626
1975	36 658	9 045	45 703
1976	34 870	7 497	42 367
1977	35 428	4 230	39 658
1978	40 552	2 936	43 488
1979	52 152	3 182	55 334
1980	47 915	3 196	51 111
1981	61 033	2 527	63 560
1982	67 038	2 387	69 425
1983	63 889	2 054	65 943
1984	47 276	1 069	48 285
1985	49 553	1 380	51 099
1986	47 317	1 546	48 863
1987	39 479	1 282	40 761
1988	53 085	1 117	54 202
1989	61 794	1 089	62 883
1990	66 004	1 196	67 200
1991	53 473	1 218	54 691
1992	46 005	1 114	47 119
1993	46 916	1 212	48 128
1994	58 354	1 159	59 504
1995	60 125	759	60 884
1996	56 228	664	56 892
1997	43 214	552	43 766
1998	40 711	482	41 193
1999	44 487	924	45 411
2000	41 135	968	42 103
2001	39 042	609	39 651
2002	49 591	878	50 496
2003	59 984	914	60 884
2004	83 791	1 035	84 826
2005	95 859	1 372	97 231
2006	96 115	1 499	97 614
2007	108 175	1 790	109 965
2008	101 651	839	102 490
2009	81 388	625	82 013
2010	63 868	311	64 179
2011	49 231	207	49 438
2012[1)]	45 708	303	46 011

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.2.2

Ýsa. Skipting aflans í fjölda eftir aldri (í milljónum) á árunum 1979–2012.

Haddock. *Landings in numbers by age (millions) in the years 1979–2012.*

Ár	Aldur *Age*							
Year	2	3	4	5	6	7	8	9+
1979	0.149	1.908	3.762	6.057	9.022	1.743	0.438	0.168
1980	0.595	1.385	11.481	4.298	3.798	3.732	0.544	0.128
1981	0.010	0.514	4.911	16.900	5.999	2.825	1.803	0.225
1982	0.107	0.245	3.149	10.851	14.049	2.068	1.000	0.926
1983	0.034	1.010	1.589	4.596	9.850	8.839	0.766	0.487
1984	0.241	1.069	4.946	1.341	4.772	3.742	4.076	0.318
1985	1.320	1.728	4.562	6.796	0.855	1.682	1.914	2.199
1986	1.012	4.223	4.068	4.686	5.139	0.494	0.796	1.297
1987	1.939	8.308	6.965	2.728	2.042	1.094	0.132	0.504
1988	0.237	9.831	15.164	5.824	1.304	1.084	0.609	0.279
1989	0.188	2.474	22.560	9.571	3.196	0.513	0.556	0.285
1990	1.857	2.415	8.628	23.611	6.331	0.816	0.150	0.141
1991	8.617	2.145	5.397	7.342	14.103	2.648	0.338	0.067
1992	5.405	10.693	5.721	4.610	3.691	5.209	0.999	0.136
1993	0.769	12.333	12.815	2.968	1.722	1.425	2.239	0.381
1994	3.198	3.343	28.258	10.682	1.469	0.726	0.358	0.755
1995	4.015	7.323	5.744	23.927	5.769	0.615	0.290	0.518
1996	3.090	10.552	7.639	4.468	12.896	2.346	0.208	0.204
1997	1.364	3.939	10.915	4.895	2.610	5.035	0.719	0.133
1998	0.279	8.257	5.667	7.856	2.418	1.422	1.897	0.306
1999	1.434	1.550	17.243	4.516	4.837	0.915	0.620	0.545
2000	2.659	6.317	2.352	13.615	1.945	1.706	0.324	0.414
2001	2.515	11.098	6.954	1.446	6.262	0.675	0.478	0.199
2002	1.082	10.434	15.998	5.099	1.131	3.149	0.262	0.269
2003	0.401	6.352	16.265	12.548	2.968	0.748	1.236	0.161
2004	1.597	4.063	17.652	19.358	8.871	1.940	0.471	0.644
2005	2.405	9.450	6.929	25.421	13.778	4.584	0.809	0.488
2006	0.241	10.038	21.246	6.646	18.840	7.600	2.180	0.525
2007	0.782	3.884	42.224	22.239	3.354	9.952	2.740	0.700
2008	2.316	4.508	9.706	53.022	11.014	1.717	3.033	1.007
2009	1.066	3.185	4.886	8.892	35.011	5.733	0.726	1.890
2010	0.121	6.032	7.061	4.806	6.766	17.503	1.874	0.882
2011	0.253	1.584	11.797	5.080	2.853	3.983	6.220	0.677
2012	0.196	1.322	3.421	13.107	2.223	1.231	2.480	3.032

TAFLA 3.2.3

Ýsa. Meðalþyngd eftir aldri (g) í stofni á árunum 1979–2013.

Haddock. *Mean weight at age (g) in the stock in the years 1979–2013.*

Ár	Aldur *Age*							
Year	2	3	4	5	6	7	8	9
1979[1)]	185	481	910	1409	1968	2496	3077	3300
1980[1)]	185	481	910	1409	1968	2496	3077	3300
1981[1)]	185	481	910	1409	1968	2496	3077	3300
1982[1)]	185	481	910	1409	1968	2496	3077	3300
1983[1)]	185	481	910	1409	1968	2496	3077	3300
1984[1)]	185	481	910	1409	1968	2496	3077	3300
1985	244	568	1187	1673	2371	2766	3197	3331
1986	239	671	1134	1943	2399	3190	3293	3728
1987	162	550	1216	1825	2605	3030	3642	3837
1988	176	457	974	1830	2695	3102	3481	3318
1989	182	441	887	1510	2380	3009	3499	3195
1990	184	457	840	1234	1965	2675	3052	3267
1991	176	501	1003	1406	1884	2496	3755	3653
1992	157	503	894	1365	1891	2325	2936	3682
1993	168	384	878	1492	1785	2562	2573	3266
1994	181	392	680	1235	1766	1717	2977	2131
1995	167	440	755	1065	1857	2689	5377	1306
1996	174	453	813	1076	1477	2171	2426	4847
1997	174	424	817	1221	1425	1915	2390	3692
1998	203	415	753	1241	1747	1996	2342	3076
1999	206	480	715	1189	1956	2366	2782	2922
2000	179	552	889	1159	1767	2612	2917	3132
2001	190	490	1056	1437	1509	2169	2765	3300
2002	172	475	889	1460	1949	2137	1990	3709
2003	230	412	801	1268	1873	3139	2343	3301
2004	176	556	807	1282	1690	2454	3236	2942
2005	153	448	920	1188	1564	2128	2808	2550
2006	127	333	736	1145	1512	1944	2232	3272
2007	170	350	615	1053	1514	1786	2073	2198
2008	179	382	595	868	1295	1828	2201	2340
2009	139	442	687	882	1141	1495	1920	2574
2010	150	392	773	942	1190	1468	1829	2086
2011	175	442	757	1129	1304	1583	1865	2107
2012	202	481	801	1145	1481	1910	2074	2356
2013	201	589	967	1312	1710	1999	2265	2764

[1)] Meðaltal áranna 1985–2002. *Average 1985–2002.*

TAFLA 3.2.4

Ýsa. Meðalþyngd í afla eftir aldri (g) á árunum 1979–2013.

Haddock. *Weight at age from commercial catches (g) in the years 1979–2013.*

Ár	Aldur *Age*							
Year	2	3	4	5	6	7	8	9+
1979	620	960	1410	2030	2910	3800	4560	5544
1980	837	831	1306	2207	2738	3188	3843	4644
1981	584	693	1081	1656	2283	3214	3409	4354
1982	289	959	1455	1674	2351	3031	3481	3928
1983	320	1006	1496	1921	2371	2873	3678	4401
1984	691	1007	1544	2120	2514	3027	2940	3938
1985	652	1125	1811	2260	2924	3547	3733	4122
1986	336	1227	1780	2431	2771	3689	3820	4319
1987	452	1064	1692	2408	3000	3565	4215	4181
1988	362	780	1474	2217	2931	3529	3781	4430
1989	323	857	1185	1996	2893	4066	3866	4860
1990	269	700	1054	1562	2364	3414	4134	4686
1991	288	699	979	1412	1887	2674	3135	4589
1992	313	806	1167	1524	1950	2357	3075	4130
1993	303	705	1333	1875	2386	2996	3059	3467
1994	337	668	1019	1717	2391	2717	3280	3173
1995	351	746	1096	1318	2044	2893	3049	3331
1996	311	787	1187	1560	1849	2670	3510	3668
1997	379	764	1163	1649	1943	2342	3020	3285
1998	445	724	1147	1683	2250	2475	2834	3372
1999	555	908	1101	1658	2216	2659	2928	3245
2000	495	978	1333	1481	2119	2696	3307	3671
2001	541	945	1456	1731	1832	2243	3020	3757
2002	564	928	1253	1737	2219	2230	2911	3745
2003	498	922	1283	1704	2274	2744	2635	3220
2004	559	1006	1258	1579	2044	2809	3123	3141
2005	339	886	1265	1506	1916	2323	3028	3055
2006	402	749	1093	1495	1758	2163	2555	3260
2007	510	748	988	1346	1840	2062	2350	2685
2008	383	636	857	1125	1575	2149	2417	2764
2009	452	841	960	1131	1352	1757	2364	2652
2010	447	756	1092	1294	1448	1685	2188	2534
2011	588	905	1122	1455	1688	1914	2094	2599
2012	668	978	1222	1492	1903	2164	2366	2704
2013[1)]	476	986	1380	1696	2030	2256	2456	2810

[1)] Áætlað. *Estimated.*

TAFLA 3.2.5

Ýsa. Hlutfall kynþroska eftir aldri á árunum 1979–2013.

Haddock. *Proportion mature by age in the years 1979–2013.*

Ár *Year*	Aldur *Age* 2	3	4	5	6	7	8	9
1979[1)]	0.08	0.30	0.54	0.72	0.82	0.87	0.90	0.96
1980[1)]	0.08	0.30	0.54	0.72	0.82	0.87	0.90	0.96
1981[1)]	0.08	0.30	0.54	0.72	0.82	0.87	0.90	0.96
1982[1)]	0.08	0.30	0.54	0.72	0.82	0.87	0.90	0.96
1983[1)]	0.08	0.30	0.54	0.72	0.82	0.87	0.90	0.96
1984[1)]	0.08	0.30	0.54	0.72	0.82	0.87	0.90	0.96
1985	0.02	0.14	0.54	0.58	0.76	0.77	0.96	0.93
1986	0.02	0.20	0.41	0.67	0.84	0.88	0.95	0.99
1987	0.02	0.14	0.43	0.54	0.78	0.78	1.00	0.97
1988	0.01	0.22	0.39	0.77	0.79	0.93	0.91	1.00
1989	0.04	0.20	0.53	0.73	0.82	1.00	1.00	1.00
1990	0.11	0.33	0.63	0.81	0.84	0.92	0.88	1.00
1991	0.06	0.22	0.59	0.74	0.82	0.89	0.50	1.00
1992	0.05	0.23	0.42	0.80	0.90	0.90	0.86	1.00
1993	0.12	0.36	0.48	0.67	0.90	0.98	0.91	0.87
1994	0.25	0.31	0.57	0.76	0.85	1.00	0.91	1.00
1995	0.12	0.48	0.38	0.75	0.75	0.61	0.98	1.00
1996	0.19	0.36	0.59	0.65	0.79	0.74	0.95	0.91
1997	0.09	0.44	0.59	0.68	0.75	0.78	0.88	1.00
1998	0.03	0.45	0.67	0.77	0.73	0.85	0.90	1.00
1999	0.05	0.40	0.68	0.72	0.75	0.89	0.76	0.92
2000	0.11	0.26	0.63	0.81	0.87	0.87	1.00	0.78
2001	0.09	0.38	0.52	0.75	0.90	0.92	0.92	1.00
2002	0.05	0.29	0.63	0.80	0.93	0.93	1.00	1.00
2003	0.06	0.35	0.68	0.87	0.92	0.95	1.00	1.00
2004	0.04	0.36	0.57	0.83	0.91	1.00	1.00	1.00
2005	0.02	0.23	0.56	0.75	0.93	0.94	0.97	1.00
2006	0.03	0.12	0.46	0.62	0.74	0.92	1.00	1.00
2007	0.08	0.21	0.42	0.68	0.77	0.88	0.96	1.00
2008	0.03	0.26	0.42	0.62	0.83	0.87	0.90	0.98
2009	0.02	0.30	0.47	0.58	0.85	0.89	1.00	0.97
2010	0.03	0.19	0.62	0.78	0.79	0.89	0.93	1.00
2011	0.04	0.18	0.43	0.82	0.82	0.84	0.90	0.97
2012	0.11	0.17	0.44	0.63	0.82	0.90	0.85	0.91
2013	0.05	0.22	0.38	0.71	0.79	0.92	0.99	0.97

[1)] Meðaltal áranna 1985–2002. *Average 1985–2002.*

TAFLA 3.2.6

Ýsa. Aldursskiptar vísitölur (í fjölda) úr stofnmælingu botnfiska í mars.

Haddock. *Age disaggregated indices (in numbers) from the groundfish survey in March.*

Ár	Aldur *Age*									
Year	1	2	3	4	5	6	7	8	9	10
1985	28.1	32.7	18.3	23.6	26.4	3.7	10.9	4.8	5.5	0.5
1986	123.9	108.5	59.0	12.8	16.3	13.1	1.0	2.7	1.2	2.3
1987	21.8	338.3	147.5	44.1	7.7	7.5	4.7	0.4	0.6	0.4
1988	15.8	40.7	184.8	88.9	22.9	1.3	2.2	1.8	0.2	0.2
1989	10.6	23.3	41.2	146.6	45.1	12.9	0.8	0.8	0.4	0.3
1990	70.5	31.8	26.7	38.8	92.8	30.9	3.4	0.9	0.2	0.0
1991	89.7	145.9	41.4	17.7	20.2	32.9	7.6	0.3	0.1	0.1
1992	18.1	211.4	137.8	35.4	16.9	13.8	16.3	2.2	0.2	0.1
1993	30.0	37.8	245.0	87.2	11.2	3.8	1.7	4.5	0.9	0.0
1994	58.5	61.3	39.8	142.3	42.2	6.9	2.9	1.4	4.4	0.2
1995	35.9	82.5	47.0	19.8	69.5	7.7	1.3	0.1	0.3	0.0
1996	95.3	66.3	120.0	36.8	19.6	40.7	5.8	0.6	0.1	0.1
1997	8.6	119.3	50.8	53.3	10.9	7.4	10.9	1.4	0.1	0.0
1998	23.1	18.0	107.9	28.2	23.5	4.9	3.5	4.6	0.3	0.0
1999	80.7	85.5	25.5	98.7	13.0	9.8	1.4	1.8	1.0	0.1
2000	60.6	90.1	44.6	8.4	25.2	3.1	1.6	0.4	0.2	0.5
2001	81.3	147.7	115.4	22.1	4.1	10.6	0.9	0.6	0.0	0.1
2002	20.8	298.7	200.7	112.5	23.2	3.5	7.5	0.3	0.3	0.1
2003	111.6	97.5	282.5	244.9	113.5	18.0	2.6	4.5	0.5	0.8
2004	325.9	291.6	70.8	208.7	109.3	34	6.8	1.2	0.8	0.0
2005	57.9	698.3	289.4	44.6	157.2	57.5	15.7	3.4	0.3	0.2
2006	39.3	88.7	575.9	179.1	19.1	62.9	16.4	6.7	0.7	0.3
2007	34.0	65.6	88.6	436.4	85.7	7.9	21.6	4.7	2.1	0.1
2008	88.5	68.0	71.7	75.6	222.8	30.0	3.5	7.5	1.6	0.3
2009	10.5	111.2	53.8	41.5	41.9	105.6	12.9	2.2	3.1	0.4
2010	15.2	27.7	138.2	29.9	18.3	20.6	31.6	2.9	0.5	0.7
2011	8.8	27.6	24.8	77.4	14.0	5.9	9.4	14.9	1.2	0.3
2012	12.5	14.9	31.3	27.2	58.3	5.2	2.9	5.3	6.9	0.8
2013	13.9	23.3	19.7	22.9	22.5	41.9	4.8	2.5	3.9	4.5

TAFLA 3.2.7

Ýsa. Aldursskiptar vísitölur úr stofnmælingu botnfiska að hausti.

Haddock. *Age disaggregated indices from the groundfish survey in autumn.*

Ár	Aldur *Age*									
Year	0	1	2	3	4	5	6	7	8	9
1996	16.1	460.9	109.8	85.8	18.5	7.8	18.3	1.6	0.0	0.0
1997	52.9	32.4	212.9	54.5	38.7	7.0	5.7	6.1	0.3	0.0
1998	209.1	81.1	32.5	133.4	19.8	15.8	5.3	5.4	1.9	0.0
1999	178.6	397.4	66.9	28.6	97.1	11.9	10.4	0.5	2.1	0.3
2000	56.2	162.3	260.1	45.8	8.2	28.7	2.0	3.2	0.1	0.3
2001	47.0	387	282.1	170.2	35.7	4.1	13.9	0.7	1.0	0.0
2002	150.6	85.2	237.8	197.5	98.5	19.3	3.0	2.3	1.0	0.1
2003	316.5	343.8	147.8	252.4	169.2	56.7	9.5	2.4	0.7	0.0
2004	189.4	713	348.5	51.2	160.3	70.6	17.0	4.0	0.8	0.5
2005	91.1	74.2	560.4	182.1	27.3	96.5	26.7	10.4	1.9	0.0
2006	85.9	124.1	117.6	510.4	108.5	13.8	40.4	9.8	3.9	1.5
2007	203.4	93.8	78.5	92.8	340.6	58.7	8.5	12.4	3.8	0.6
2008	95.3	201.8	93.9	68.4	87.9	198.9	16.8	2.9	3.5	0.2
2009	52.8	47.5	269.5	68.2	31.0	48.5	96.8	9.5	1.5	2.2
2010	37.2	43.3	56.6	143.4	30.6	14.4	23.7	37.2	4.8	0.9
2011	-	-	-	-	-	-	-	-	-	-
2012	26.8	53.8	29.1	34.3	37.7	70.5	9.3	3.6	10.0	10.5

TAFLA 3.2.8

Ýsa. Fjöldi tveggja ára nýliða í milljónum, stofn þriggja ára og eldri, hrygningar- og viðmiðunarstofn í þús. tonna, afli í þús. tonna, veiðihlutfall (afli/viðmiðunarstofn) og fiskveiðidánartala (meðaltal fyrir 4–7 ára).

Haddock. *Recruitment as 2-year-olds in millions, biomass of ages 3+, spawning stock and reference biomass in thous. tonnes, landings in thous. tonnes, harvest rate (landings/reference biomass), and fishing mortality (average for ages 4–7).*

Ár *Year*	Nýliðun *Recruitment*	Stofn 3+[1)] *Biomass 3+*	Hrygn.stofn[2)] *SSB*	Viðm.stofn[3)] *Ref. biomass*	Afli *Landings*	Veiðihlutfall[4)] *Harvest rate*	Fiskveiðidánartala *Fishing mortality*
1979	81	162	96	102	55	54%	0.52
1980	37	192	117	138	51	37%	0.40
1981	10	207	142	177	64	36%	0.54
1982	43	180	137	168	69	41%	0.44
1983	29	148	113	130	66	51%	0.51
1984	21	113	83	95	48	51%	0.52
1985	43	102	67	92	51	55%	0.54
1986	87	96	60	80	49	61%	0.74
1987	164	105	46	70	41	58%	0.58
1988	49	154	69	86	54	63%	0.68
1989	30	168	100	123	63	51%	0.68
1990	27	146	111	120	67	56%	0.61
1991	92	123	90	109	55	50%	0.66
1992	175	106	66	71	47	66%	0.73
1993	38	130	71	66	48	73%	0.67
1994	47	128	83	69	60	86%	0.64
1995	73	124	85	92	61	66%	0.66
1996	36	108	70	74	57	77%	0.68
1997	103	87	59	63	44	70%	0.62
1998	18	97	64	55	41	75%	0.63
1999	50	91	64	58	45	78%	0.68
2000	117	91	64	65	42	64%	0.64
2001	156	115	70	68	40	58%	0.46
2002	188	168	99	94	50	53%	0.46
2003	50	220	148	124	61	49%	0.40
2004	152	253	181	188	85	45%	0.49
2005	388	259	177	191	97	51%	0.52
2006	88	300	144	156	98	63%	0.58
2007	43	299	164	149	110	74%	0.55
2008	45	251	160	163	103	63%	0.48
2009	118	194	144	148	82	55%	0.49
2010	30	169	115	116	64	55%	0.47
2011	24	150	98	108	49	46%	0.41
2012	15	135	92	114	46	41%	0.34
2013	22	120	90	110			
2014[5)]	24	106	88	96			

[1)] Stofn 3 ára og eldri í upphafi árs, reiknaður út frá meðalþyngdum úr stofnmælingu í mars.
Biomass of ages 3+ in the beginning of the year, calculated using mean weights from spring survey.

[2)] Hrygningarstofn á hrygningartíma, reiknaður út frá meðalþyngdum og kynþroskahlutfalli úr stofnmælingu í mars.
Spawning stock biomass at the time time of spawning, calculated using mean weights and maturity from spring survey.

[3)] Viðmiðunarstofn 45 cm og stærri ýsu, reiknaður úr frá meðalþyngdum úr stofnmælingu í mars.
Reference biomass of 45 cm and larger haddock, calculated using mean weights from spring survey.

[4)] Afli sem hlutfall af viðmiðunarstofni í upphafi árs.
Landings divided by the reference biomass in the beginning of the year.

[5)] Áætluð stofnstærð miðað við veiðar samkvæmt aflareglu.
Biomass projection based on adopted harvest control rule.

TAFLA 3.2.9

Ýsa. Stofnstærð í fjölda eftir aldri (í milljónum) og stærð hrygningarstofns og stofns 3 ára og eldri (þús. tonna) á árunum 1979–2013.

Haddock. *Stock abundance in numbers by age (millions), spawning biomass and biomass of age 3 and older (thous. tonnes) in the years 1979–2013.*

Ár *Year*	Aldur *Age*								Hrygningar-stofn *Spawning stock*	Stofn 3+ *Stock 3+*
	2	3	4	5	6	7	8	9+		
1979	80.9	117.3	27.7	19.6	20.4	3.4	0.8	0.4	96	162
1980	37.4	66.1	94.3	19.3	10.5	8.6	1.2	0.4	117	192
1981	10.4	30.1	52.9	66.8	11.9	5.2	3.6	0.7	142	207
1982	42.8	8.5	24.2	38.9	39.4	4.3	1.7	1.7	137	180
1983	29.3	34.9	6.8	16.9	22.0	19.6	1.7	1.0	113	148
1984	20.6	24.0	27.7	4.1	9.7	9.1	8.0	1.1	83	113
1985	42.8	16.6	18.7	18.2	2.1	3.6	4.1	3.5	67	102
1986	86.5	33.8	12.0	11.1	8.7	1.0	1.4	2.4	60	96
1987	164	69.9	23.9	6.2	4.9	2.5	0.4	1.3	46	105
1988	48.7	132.5	49.7	13.3	2.6	2.2	1.1	0.7	69	154
1989	29.8	39.7	99.6	27.0	5.6	0.9	0.8	0.7	100	168
1990	27.1	24.2	30.3	61.2	13.4	1.7	0.3	0.4	111	146
1991	92.3	20.5	17.6	17.0	28.7	5.3	0.6	0.3	90	123
1992	175.1	67.8	14.8	9.6	7.2	10.7	1.9	0.4	66	106
1993	38.4	138.5	45.8	7.0	3.7	2.6	4.1	0.8	71	130
1994	46.8	30.8	102.2	25.9	3.0	1.4	0.8	1.7	83	128
1995	72.9	35.5	22.2	58.1	11.5	1.1	0.5	1.0	85	124
1996	36.3	56.0	22.4	13.0	25.9	4.2	0.4	0.5	70	108
1997	102.5	27.0	36.3	11.4	6.6	9.6	1.3	0.4	59	87
1998	18.0	82.7	18.5	19.9	4.9	3.0	3.3	0.6	64	97
1999	50.2	14.5	60.2	10.0	9.1	1.8	1.2	1.2	64	91
2000	117.4	39.8	10.4	33.7	4.1	3.1	0.7	0.8	64	91
2001	156.3	93.7	26.8	6.4	15.3	1.6	1.0	0.6	70	115
2002	188.3	125.7	66.7	15.7	3.9	6.8	0.7	0.7	99	168
2003	49.9	153.2	93.5	40.1	8.2	2.2	2.8	0.6	148	220
2004	152.1	40.5	119.7	61.8	21.5	4.1	1.1	1.5	181	253
2005	388.3	123.0	29.5	82.0	33.1	9.6	1.6	1.1	177	259
2006	87.7	315.7	92.2	17.9	44.2	14.6	3.7	1.0	144	300
2007	42.8	71.6	249.4	56.3	8.6	19.1	5.1	1.4	164	299
2008	45.5	34.4	55.1	166	25.9	4.0	6.6	2.2	160	251
2009	118.1	35.1	24.0	36.3	87.9	11.3	1.7	3.6	144	194
2010	30.0	95.8	25.9	15.3	21.7	40.3	4.0	2.0	115	169
2011	23.8	24.5	72.9	14.8	8.2	11.6	17.2	2.4	98	150
2012	14.7	19.2	18.6	49.0	7.5	4.1	5.9	9.8	92	135
2013	21.9	11.9	14.5	12.1	28.3	4.1	2.2	7.9	90	120

TAFLA 3.2.10
Ýsa. Veiðidánartala eftir aldri á árunum 1979–2012.
Haddock. *Fishing mortality by age in the years 1979–2012.*

Ár	Aldur *Age*								Meðaltal 4–7
Year	2	3	4	5	6	7	8	9	*Mean 4–7*
1979	0.002	0.018	0.162	0.419	0.669	0.833	0.990	0.553	0.521
1980	0.018	0.023	0.144	0.282	0.508	0.657	0.685	0.561	0.398
1981	0.001	0.019	0.108	0.328	0.813	0.920	0.793	0.463	0.542
1982	0.003	0.032	0.156	0.369	0.501	0.751	1.056	0.903	0.444
1983	0.001	0.032	0.301	0.357	0.683	0.692	0.706	0.643	0.508
1984	0.013	0.051	0.220	0.449	0.784	0.607	0.825	0.493	0.515
1985	0.035	0.122	0.315	0.532	0.582	0.719	0.737	1.314	0.537
1986	0.013	0.148	0.467	0.625	1.048	0.816	0.937	0.976	0.739
1987	0.013	0.141	0.389	0.669	0.620	0.657	0.530	0.500	0.584
1988	0.005	0.086	0.411	0.665	0.811	0.815	0.998	0.557	0.675
1989	0.007	0.071	0.288	0.498	1.003	0.917	1.552	0.682	0.676
1990	0.079	0.117	0.379	0.556	0.736	0.772	0.769	0.794	0.611
1991	0.109	0.123	0.413	0.651	0.783	0.811	0.890	0.473	0.664
1992	0.035	0.192	0.555	0.762	0.827	0.768	0.858	0.973	0.728
1993	0.022	0.104	0.370	0.635	0.736	0.934	0.933	0.842	0.669
1994	0.078	0.128	0.365	0.608	0.769	0.821	0.643	0.786	0.641
1995	0.063	0.259	0.337	0.607	0.804	0.895	0.971	0.856	0.661
1996	0.099	0.233	0.473	0.480	0.798	0.950	0.912	0.790	0.675
1997	0.015	0.176	0.404	0.641	0.579	0.873	0.90	0.819	0.624
1998	0.017	0.117	0.413	0.575	0.781	0.738	1.025	1.041	0.627
1999	0.032	0.126	0.380	0.689	0.878	0.792	0.870	0.806	0.685
2000	0.025	0.193	0.286	0.591	0.737	0.930	0.740	0.933	0.636
2001	0.018	0.140	0.337	0.286	0.603	0.620	0.745	0.568	0.462
2002	0.006	0.096	0.308	0.445	0.381	0.710	0.523	0.650	0.461
2003	0.009	0.047	0.214	0.424	0.508	0.469	0.685	0.345	0.404
2004	0.012	0.117	0.178	0.425	0.609	0.753	0.616	0.645	0.491
2005	0.007	0.089	0.301	0.419	0.617	0.753	0.849	0.809	0.522
2006	0.003	0.036	0.294	0.529	0.638	0.854	1.056	1.057	0.579
2007	0.020	0.062	0.207	0.574	0.561	0.858	0.902	0.787	0.550
2008	0.058	0.157	0.217	0.435	0.634	0.637	0.704	0.759	0.481
2009	0.010	0.106	0.254	0.316	0.580	0.826	0.616	0.840	0.494
2010	0.004	0.072	0.359	0.428	0.423	0.654	0.719	0.707	0.466
2011	0.012	0.074	0.197	0.477	0.489	0.476	0.512	0.414	0.410
2012	0.015	0.079	0.227	0.350	0.396	0.404	0.622	0.430	0.344

TAFLA 3.2.11

Ýsa. Forsendur í framreikningum á þróun stofnsins árin 2013–2015.
Náttúrulegur dánarstuðull M=0.2.

Haddock. *Input parameters for catch and stock projection for the years 2013–2015.*
Natural mortality coefficient, M=0.2.

Aldur *Age*	Stofnstærð *Stock size*	Veiðimynstur *Selectivity*			Kynþroskahlutfall *Proportion mature*		Meðalþyngd (g) *Mean weight (g)*	
	2013	2013	2014	2015	2014	2015	2014	2015
2	21.887	0.024	0.017	0.014	0.073	0.070	193	190
3	11.851	0.348	0.260	0.241	0.353	0.341	517	503
4	14.537	0.682	0.710	0.623	0.703	0.665	1090	996
5	12.144	0.934	0.961	0.986	0.823	0.846	1537	1670
6	28.298	1.135	1.099	1.142	0.876	0.898	1899	2119
7	4.146	1.248	1.230	1.249	0.910	0.921	2282	2454
8	2.237	1.349	1.302	1.264	0.926	0.938	2543	2787
9	2.600	1.433	1.302	1.264	0.937	0.946	2773	3004
10	4.489	1.433	1.302	1.264	0.951	0.951	3183	3190

Stofnstærð:	Stofnstærð í milljónum fiska í ársbyrjun 2013.
Veiðimynstur:	Hlutfallsleg veiðidánartala hvers aldursflokks, áætlað út frá meðalþyngd í stofni.
Hlutfall kynþroska:	Hlutfall kynþroska eftir aldri, áætlað út frá meðalþyngd í stofni.
Meðalþyngd:	Meðalþyngd í stofni, spáð út frá meðalþyngdum í stofnmælingu í mars 2013 og miðað við áætlaðan vöxt árið 2013.
Stock size:	*Stock size in millions in 2013.*
Selectivity:	*Relative fishing mortality on each age group predicted from mean weight at age in stock.*
Maturity at age:	*Maturity at age predicted from mean weight at age in the stock.*
Mean weight:	*Mean weight at age in the stock predicted from mean weight at age in the groundfish survey in March 2012 and predicted growth in the year 2013.*

TAFLA 3.3.1
Ufsi. Afli (í tonnum) á Íslandsmiðum 1955–2012.
Saithe. *Landings (in tonnes) in Icelandic waters 1955–2012.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*
1955	12 298	35 545	47 843
1956	25 250	42 611	67 861
1957	19 055	43 007	62 062
1958	14 961	38 219	53 180
1959	14 975	33 504	48 479
1960	12 703	35 343	48 046
1961	13 675	36 155	49 830
1962	13 469	36 940	50 409
1963	14 758	33 691	48 449
1964	21 665	38 752	60 417
1965	24 866	35 242	60 108
1966	21 022	31 154	52 176
1967	29 021	47 249	76 270
1968	38 027	39 919	77 946
1969	53 988	62 359	116 347
1970	63 882	49 433	113 315
1971	60 080	73 811	133 891
1972	59 945	47 928	107 873
1973	56 567	54 546	111 113
1974	65 220	32 348	97 568
1975	61 430	26 494	87 924
1976	56 811	25 134	81 945
1977	46 973	15 053	62 026
1978	44 327	5 345	49 672
1979	57 066	6 438	63 504
1980	52 436	5 911	58 347
1981	54 921	4 080	59 001
1982	65 124	3 786	68 910
1983	55 904	2 362	58 266
1984	60 406	2 313	62 719
1985	55 135	1 937	57 072
1986	63 867	1 001	64 868
1987	78 175	2 356	80 531
1988	74 383	2 864	77 247
1989	79 810	2 615	82 425
1990	95 032	3 095	98 127
1991	99 390	2 926	102 316
1992	77 832	1 765	79 597
1993	69 982	1 666	71 648
1994	63 333	1 006	64 339
1995	47 466	1 163	48 629
1996	39 297	804	40 101
1997	36 548	716	37 264
1998	30 531	1 000	31 531
1999	30 583	710	31 293
2000	32 914	232	33 146
2001	31 854	209	32 063
2002	41 687	384	42 071
2003	51 855	398	52 253
2004	64 314	477	64 791
2005	68 283	860	69 143
2006	75 197	466	75 663
2007	64 005	425	64 430
2008	69 991	198	70 189
2009	61 119	272	61 391
2010	53 772	500	54 272
2011	50 386	737	51 123
2012	50 843	940	51 783

TAFLA 3.3.2

Ufsi. Skipting aflans í fjölda eftir aldri (í milljónum) á árunum 1980–2012.

Saithe. *Catch in numbers at age (millions) in the years 1980–2012.*

Ár	Aldur *Age*											
Year	3	4	5	6	7	8	9	10	11	12	13	14
1980	0.275	2.540	5.214	2.596	2.169	1.341	0.387	0.262	0.155	0.112	0.064	0.033
1981	0.203	1.325	3.503	5.404	1.457	1.415	0.578	0.242	0.061	0.154	0.135	0.128
1982	0.508	1.092	2.804	4.845	4.293	1.215	0.975	0.306	0.059	0.035	0.048	0.046
1983	0.107	1.750	1.065	2.455	4.454	2.311	0.501	0.251	0.038	0.012	0.002	0.004
1984	0.053	0.657	0.800	1.825	2.184	3.610	0.844	0.376	0.291	0.135	0.185	0.226
1985	0.376	4.014	3.366	1.958	1.536	1.172	0.747	0.479	0.074	0.023	0.072	0.071
1986	3.108	1.400	4.170	2.665	1.550	1.116	0.628	1.549	0.216	0.051	0.030	0.014
1987	0.956	5.135	4.428	5.409	2.915	1.348	0.661	0.496	0.498	0.058	0.027	0.048
1988	1.318	5.067	6.619	3.678	2.859	1.775	0.845	0.226	0.270	0.107	0.024	0.001
1989	0.315	4.313	8.471	7.309	1.794	1.928	0.848	0.270	0.191	0.135	0.076	0.010
1990	0.143	1.692	5.471	10.112	6.174	1.816	1.087	0.380	0.151	0.055	0.076	0.037
1991	0.198	0.874	3.613	6.844	10.772	3.223	0.858	0.838	0.228	0.040	0.006	0.005
1992	0.242	2.928	3.844	4.355	3.884	4.046	1.290	0.350	0.196	0.056	0.054	0.015
1993	0.657	1.083	2.841	2.252	2.247	2.314	3.671	0.830	0.223	0.188	0.081	0.012
1994	0.702	2.955	1.770	2.603	1.377	1.243	1.263	2.009	0.454	0.158	0.188	0.082
1995	1.573	1.853	2.661	1.807	2.370	0.905	0.574	0.482	0.521	0.106	0.035	0.013
1996	1.102	2.608	1.868	1.649	0.835	1.233	0.385	0.267	0.210	0.232	0.141	0.074
1997	0.603	2.960	2.766	1.651	1.178	0.599	0.454	0.125	0.095	0.114	0.077	0.043
1998	0.183	1.289	1.767	1.545	1.114	0.658	0.351	0.265	0.120	0.081	0.085	0.085
1999	0.989	0.732	1.564	2.176	1.934	0.669	0.324	0.140	0.072	0.025	0.028	0.022
2000	0.850	2.383	0.896	1.511	1.612	1.806	0.335	0.173	0.057	0.033	0.017	0.007
2001	1.223	2.619	2.184	0.591	0.977	0.943	0.819	0.186	0.094	0.028	0.028	0.013
2002	1.187	4.190	3.147	2.970	0.519	0.820	0.570	0.309	0.101	0.027	0.015	0.011
2003	2.284	4.363	6.031	2.472	1.942	0.285	0.438	0.289	0.196	0.028	0.029	0.015
2004	0.952	7.841	7.195	5.363	1.563	1.057	0.211	0.224	0.157	0.074	0.039	0.011
2005	2.607	3.089	7.333	6.876	3.592	0.978	0.642	0.119	0.149	0.089	0.046	0.012
2006	1.380	10.051	2.616	5.840	4.514	1.989	0.667	0.485	0.118	0.112	0.086	0.031
2007	1.244	6.552	8.751	2.124	2.935	1.817	0.964	0.395	0.190	0.043	0.036	0.020
2008	1.432	3.602	5.874	6.706	1.155	1.894	1.248	0.803	0.262	0.176	0.087	0.044
2009	2.820	5.166	2.084	2.734	2.883	0.777	1.101	0.847	0.555	0.203	0.134	0.036
2010	2.146	6.284	3.058	0.997	1.644	1.571	0.514	0.656	0.522	0.231	0.114	0.064
2011	2.004	4.850	4.006	1.502	0.677	1.065	1.145	0.323	0.433	0.244	0.150	0.075
2012	1.183	4.816	3.514	2.417	0.903	0.432	0.883	1.015	0.354	0.277	0.173	0.099

TAFLA 3.3.3
Ufsi. Meðalþyngd eftir aldri (g) í afla á árunum 1980–2013.
Saithe. *Weight at age (g) in catches in the years 1980–2013.*

Ár	Aldur *Age*											
Year	3	4	5	6	7	8	9	10	11	12	13	14
1980	1428	1983	2667	3689	5409	6321	7213	8565	9147	9617	10066	11041
1981	1585	2037	2696	3525	4541	6247	6991	8202	9537	9089	9351	10225
1982	1547	2194	3015	3183	5114	6202	7256	7922	8924	10134	9447	10535
1983	1530	2221	3171	4270	4107	5984	7565	8673	8801	9039	11138	9818
1984	1653	2432	3330	4681	5466	4973	7407	8179	8770	8831	11010	11127
1985	1609	2172	3169	3922	4697	6411	6492	8346	9401	10335	11027	10644
1986	1450	2190	2959	4402	5488	6406	7570	6487	9616	10462	11747	11902
1987	1516	1715	2670	3839	5081	6185	7330	8025	7974	9615	12246	11656
1988	1261	2017	2513	3476	4719	5932	7523	8439	8748	9559	10824	14099
1989	1403	2021	2194	3047	4505	5889	7172	8852	10170	10392	12522	11923
1990	1647	1983	2566	3021	4077	5744	7038	7564	8854	10645	11674	11431
1991	1224	1939	2432	3160	3634	4967	6629	7704	9061	9117	10922	11342
1992	1269	1909	2578	3288	4150	4865	6168	7926	8349	9029	11574	9466
1993	1381	2143	2742	3636	4398	5421	5319	7006	8070	10048	9106	11591
1994	1444	1836	2649	3512	4906	5539	6818	6374	8341	9770	10528	11257
1995	1370	1977	2769	3722	4621	5854	6416	7356	6815	8312	9119	11910
1996	1229	1755	2670	3802	4902	5681	7182	7734	9256	8322	10501	11894
1997	1325	1936	2409	3906	5032	6171	7202	7883	8856	9649	9621	10877
1998	1347	1972	2943	3419	4850	5962	6933	7781	8695	9564	10164	10379
1999	1279	2106	2752	3497	3831	5819	7072	8078	8865	10550	10823	11300
2000	1367	1929	2751	3274	4171	4447	6790	8216	9369	9817	10932	12204
2001	1280	1882	2599	3697	4420	5538	5639	7985	9059	9942	10632	10988
2002	1308	1946	2569	3266	4872	5365	6830	7067	9240	9659	10088	11632
2003	1310	1908	2545	3336	4069	5792	7156	8131	8051	10186	10948	11780
2004	1467	1847	2181	2918	4017	5135	7125	7732	8420	8927	10420	10622
2005	1287	1888	2307	2619	3516	5080	6060	8052	8292	8342	8567	10256
2006	1164	1722	2369	2808	3235	4361	6007	7166	8459	9324	9902	9636
2007	1140	1578	2122	2719	3495	4114	5402	6995	7792	9331	9970	10738
2008	1306	1805	2295	2749	3515	4530	5132	6394	7694	9170	9594	11258
2009	1412	1862	2561	3023	3676	4596	5651	6074	7356	8608	9812	10639
2010	1287	1787	2579	3469	4135	4850	5558	6289	6750	7997	9429	10481
2011	1175	1801	2526	3680	4613	5367	5685	6466	6851	7039	8268	8958
2012	1160	1668	2369	3347	4430	5486	6161	6448	7220	8054	8147	8901
2013[1)]	1207	1635	2330	3248	4281	5387	6550	6401	6940	7697	8615	9447

[1)] Áætlað. *Estimated.*

TAFLA 3.3.4

Ufsi. Meðalþyngd eftir aldri (g) í stofnmælingu í mars á árunum 1985–2013.

Saithe. *Mean weight at age (g) in spring survey in the years 1985–2013.*

Ár	Aldur *Age*						
Year	3	4	5	6	7	8	9
1985	959	1675	2144	3126	4052	5084	4504
1986	838	1405	2268	3322	4742	5939	7204
1987	865	1152	1707	3423	4260	6049	6891
1988	776	1429	2007	2779	4313	5221	7320
1989	641	1397	1784	2815	3700	5101	6331
1990	740	1251	2135	2614	4432	6000	6831
1991	788	1354	1864	2658	2934	4644	4728
1992	875	1383	2008	2979	3812	4273	6107
1993	760	1460	2062	2947	3765	4873	4389
1994	853	1606	2771	3387	4722	6207	7430
1995	741	1221	2329	3638	4269	6105	5619
1996	899	1327	1972	2740	5263	5107	4072
1997	741	1303	1781	2731	4229	5754	7628
1998	841	1155	1799	2530	3934	5381	5489
1999	774	1465	2131	2873	3548	5537	8025
2000	821	1352	2227	2712	3617	3876	5915
2001	767	1517	2124	3392	4225	5137	5521
2002	739	1264	2196	3366	4593	5392	6559
2003	603	1183	1888	2678	3677	5315	8921
2004	820	1216	1811	2694	4076	5452	8209
2005	670	1373	1823	2342	3507	5544	6574
2006	650	1168	2032	2534	3117	4099	6053
2007	600	1151	1741	2472	3256	3602	4998
2008	692	1203	1784	2310	3588	4554	5598
2009	688	1425	2019	2532	3251	4991	5430
2010	777	1307	2181	2904	3686	4588	6896
2011	609	1212	2198	3070	3839	4757	5663
2012	699	1063	1718	2731	4173	5469	6779
2013	469	1109	1905	3072	3908	4883	6331

TAFLA 3.3.5

Ufsi. Hlutfall kynþroska eftir aldri í stofnmælingu í mars á árunum 1985–2013. Aldurshópar yngri en 4 ára taldir ókynþroska og eldri en 9 ára að fullu kynþroska.

Saithe. *Proportion mature at age in spring survey in the years 1985–2013. Age groups younger than 4 considered immature and more than 9 years old fully mature.*

a) Mæld gildi í stofnmælingu. *Observations in survey.*

Ár	Aldur *Age*					
Year	4	5	6	7	8	9
1985	0.05	0.13	0.40	0.57	0.73	0.61
1986	0.02	0.18	0.50	0.74	0.84	0.89
1987	0.04	0.13	0.60	0.69	0.88	0.95
1988	0.01	0.08	0.31	0.61	0.62	0.87
1989	0.03	0.11	0.44	0.40	0.60	0.60
1990	0.02	0.20	0.29	0.71	0.89	0.87
1991	0.01	0.08	0.23	0.21	0.41	0.50
1992	0.02	0.18	0.48	0.62	0.66	0.73
1993	0.06	0.12	0.35	0.51	0.70	0.56
1994	0.09	0.49	0.65	0.81	0.83	0.84
1995	0.02	0.10	0.42	0.70	0.79	0.49
1996	0.02	0.12	0.42	0.71	0.54	1.00
1997	0.11	0.10	0.45	0.66	0.76	0.94
1998	0.00	0.14	0.36	0.66	0.64	0.81
1999	0.22	0.27	0.38	0.44	0.77	1.00
2000	0.14	0.51	0.54	0.76	0.90	0.83
2001	0.17	0.51	0.62	0.91	0.84	1.00
2002	0.05	0.52	0.85	0.90	0.95	0.96
2003	0.03	0.25	0.48	0.64	1.00	1.00
2004	0.03	0.35	0.58	0.84	0.94	1.00
2005	0.13	0.28	0.58	0.72	0.96	0.95
2006	0.05	0.33	0.59	0.61	0.76	0.88
2007	0.05	0.30	0.54	0.78	0.81	0.83
2008	0.07	0.29	0.49	0.72	0.90	0.96
2009	0.03	0.29	0.47	0.76	0.77	0.85
2010	0.06	0.47	0.79	0.93	1.00	1.00
2011	0.02	0.23	0.42	0.78	0.76	0.91
2012	0.01	0.12	0.36	0.66	0.87	0.94
2013	0.04	0.15	0.40	0.62	1.00	1.00

b) Spáð gildi með kynþroskalíkani. *Prediction from maturity model.*

Ár	Aldur *Age*					
Year	4	5	6	7	8	9
1985	0.10	0.20	0.38	0.60	0.79	0.90
1986	0.08	0.18	0.35	0.57	0.76	0.89
1987	0.07	0.16	0.32	0.54	0.74	0.87
1988	0.07	0.15	0.30	0.51	0.72	0.86
1989	0.06	0.14	0.28	0.49	0.70	0.85
1990	0.06	0.13	0.27	0.48	0.69	0.84
1991	0.06	0.13	0.27	0.47	0.69	0.84
1992	0.06	0.13	0.27	0.48	0.69	0.84
1993	0.06	0.14	0.28	0.49	0.70	0.85
1994	0.07	0.15	0.30	0.52	0.72	0.86
1995	0.08	0.17	0.33	0.55	0.75	0.88
1996	0.09	0.19	0.36	0.58	0.77	0.89
1997	0.10	0.22	0.40	0.62	0.80	0.91
1998	0.12	0.24	0.44	0.66	0.82	0.92
1999	0.13	0.27	0.48	0.69	0.84	0.93
2000	0.15	0.30	0.51	0.72	0.86	0.94
2001	0.16	0.32	0.54	0.74	0.87	0.94
2002	0.18	0.34	0.56	0.76	0.88	0.95
2003	0.18	0.35	0.57	0.76	0.89	0.95
2004	0.18	0.35	0.57	0.76	0.89	0.95
2005	0.18	0.34	0.56	0.76	0.88	0.95
2006	0.17	0.33	0.54	0.74	0.88	0.94
2007	0.16	0.31	0.52	0.73	0.87	0.94
2008	0.14	0.29	0.50	0.71	0.86	0.94
2009	0.14	0.28	0.48	0.69	0.85	0.93
2010	0.13	0.26	0.47	0.68	0.84	0.93
2011	0.12	0.26	0.46	0.67	0.83	0.92
2012	0.12	0.25	0.45	0.66	0.83	0.92
2013	0.12	0.25	0.44	0.66	0.82	0.92

TAFLA 3.3.6

Ufsi. Aldursskiptar vísitölur úr stofnmælingu botnfiska í mars 1985–2013.

Saithe. *Age disaggregated indices from the groundfish survey in March 1985–2013.*

Ár	Aldur *Age*								
Year	2	3	4	5	6	7	8	9	10
1985	0.61	0.58	2.98	5.06	1.70	1.02	0.46	1.31	0.13
1986	2.33	2.40	2.05	2.06	1.39	0.60	0.26	0.16	0.29
1987	0.39	11.49	12.87	6.25	3.67	2.86	0.73	0.33	0.24
1988	0.31	0.48	2.70	2.76	1.66	0.89	0.35	0.06	0.06
1989	1.43	3.96	4.98	6.46	2.42	1.74	0.89	0.39	0.00
1990	0.35	1.69	4.83	6.18	11.98	3.17	1.13	0.57	0.10
1991	0.22	1.40	1.69	2.15	1.08	2.38	0.28	0.02	0.02
1992	0.15	0.91	5.69	5.45	2.76	2.62	1.86	0.26	0.05
1993	1.27	11.04	2.00	6.79	2.40	2.24	1.02	4.00	0.64
1994	0.82	0.73	1.89	1.73	1.94	0.52	0.83	1.00	3.59
1995	0.48	1.97	1.09	0.50	0.28	0.33	0.09	0.14	0.15
1996	0.13	0.51	3.71	1.11	0.99	0.57	0.94	0.05	0.09
1997	0.32	0.90	4.66	3.91	0.94	0.39	0.15	0.10	0.05
1998	0.11	1.64	2.30	2.50	1.23	0.69	0.29	0.08	0.07
1999	0.75	3.70	0.92	1.23	1.64	0.56	0.16	0.02	0.02
2000	0.38	2.01	2.51	0.60	0.84	0.52	0.44	0.07	0.03
2001	0.89	1.90	2.60	1.58	0.20	0.22	0.38	0.13	0.07
2002	1.05	2.22	2.93	3.04	2.14	0.41	0.46	0.31	0.22
2003	0.05	9.60	4.99	2.90	1.34	0.75	0.20	0.05	0.10
2004	0.91	1.38	8.98	5.79	4.20	1.44	0.80	0.17	0.16
2005	0.26	4.30	2.32	6.87	4.25	2.17	0.84	0.43	0.12
2006	0.00	2.18	6.62	1.92	8.58	3.37	1.16	0.28	0.25
2007	0.05	0.31	1.70	3.07	0.74	1.47	0.64	0.27	0.15
2008	0.08	2.25	1.78	2.73	3.73	0.55	0.70	0.31	0.14
2009	0.21	2.42	1.79	0.65	0.84	0.75	0.11	0.25	0.14
2010	0.07	1.23	4.99	2.48	0.62	0.59	0.45	0.07	0.11
2011	0.15	3.83	4.20	3.04	1.13	0.39	0.37	0.42	0.16
2012	0.02	1.74	12.02	6.85	2.73	0.61	0.17	0.37	0.49
2013	0.12	4.26	7.42	6.78	4.65	2.56	1.11	0.30	0.43

TAFLA 3.3.7

Ufsi. Fjöldi þriggja ára nýliða í milljónum, hrygningar- og viðmiðunarstofn í upphafi árs í þús. tonna, afli í þús. tonna, veiðihlutfall (afli/viðmiðunarstofn) og fiskveiðidánartala (meðaltal fyrir 4–9 ára).

Saithe. *Recruitment as 3-year-olds in millions, spawning stock and reference biomass in thous. tonnes, landings in thous. tonnes, harvest rate (landings/reference biomass), and fishing mortality (average for ages 4–9).*

Ár *Year*	Nýliðun *Recruitment*	Hrygningarstofn *SSB*	Viðmiðunarstofn *Biomass 4+*	Afli *Landings*	Veiðihlutfall *Harvest rate*	Fiskveiðidánartala *Fishing mortality*
1980	28	122	312	58	19%	0.30
1981	20	130	304	59	19%	0.26
1982	22	148	294	69	23%	0.30
1983	32	147	269	58	22%	0.24
1984	42	149	287	63	22%	0.23
1985	36	139	299	57	19%	0.25
1986	67	137	318	65	20%	0.28
1987	92	127	335	81	24%	0.35
1988	50	123	416	77	19%	0.32
1989	32	126	398	82	21%	0.31
1990	21	133	378	98	26%	0.35
1991	29	143	336	102	30%	0.38
1992	15	135	288	80	28%	0.37
1993	20	113	230	72	31%	0.40
1994	18	94	186	64	35%	0.46
1995	30	70	152	49	32%	0.47
1996	25	61	147	40	27%	0.41
1997	17	62	154	37	24%	0.37
1998	9	66	151	32	21%	0.30
1999	30	70	130	31	24%	0.32
2000	31	71	139	33	24%	0.34
2001	53	77	158	32	20%	0.29
2002	62	94	213	42	20%	0.31
2003	72	119	271	52	19%	0.31
2004	26	140	312	65	21%	0.27
2005	74	149	279	69	25%	0.30
2006	43	157	307	76	25%	0.31
2007	20	151	279	64	23%	0.28
2008	30	148	251	70	28%	0.32
2009	49	137	234	61	26%	0.28
2010	50	132	251	54	22%	0.24
2011	61	135	280	51	18%	0.20
2012	40	144	311	52	17%	0.19
2013	43	158	321			
2014	32					

TAFLA 3.3.8

Ufsi. Stofnstærð í fjölda eftir aldri (í milljónum) á árunum 1980–2013.

Saithe. *Stock abundance in numbers at age (millions) in the years 1980–2013.*

Ár	Aldur *Age*											
Year	3	4	5	6	7	8	9	10	11	12	13	14
1980	28.179	46.826	30.881	10.281	8.141	3.697	1.297	0.720	0.661	0.505	0.335	0.123
1981	20.147	22.696	35.207	21.168	6.265	4.635	1.952	0.706	0.380	0.378	0.289	0.192
1982	21.585	16.255	17.219	24.590	13.309	3.707	2.563	1.109	0.390	0.226	0.224	0.172
1983	32.203	17.377	12.189	11.737	14.847	7.491	1.930	1.378	0.578	0.221	0.128	0.127
1984	41.746	26.011	13.260	8.617	7.529	9.003	4.268	1.128	0.785	0.352	0.134	0.078
1985	35.504	33.741	19.915	9.439	5.592	4.631	5.219	2.534	0.654	0.484	0.217	0.083
1986	66.821	28.674	25.729	14.058	6.040	3.380	2.629	3.039	1.439	0.397	0.294	0.132
1987	92.106	53.856	21.632	17.761	8.668	3.489	1.816	1.454	1.633	0.834	0.230	0.170
1988	50.370	73.950	39.826	14.324	10.219	4.598	1.691	0.913	0.705	0.870	0.445	0.123
1989	31.958	40.506	55.144	26.834	8.483	5.617	2.327	0.885	0.462	0.389	0.481	0.246
1990	20.772	25.723	30.346	37.516	16.149	4.756	2.911	1.245	0.459	0.260	0.219	0.271
1991	29.490	16.680	19.034	20.120	31.366	8.589	2.313	1.468	0.605	0.245	0.139	0.117
1992	14.765	23.646	12.252	12.428	11.309	16.168	4.022	1.126	0.687	0.314	0.127	0.072
1993	19.776	11.844	17.407	8.037	7.039	5.884	7.657	1.979	0.533	0.360	0.164	0.066
1994	17.539	15.836	8.638	11.198	4.407	3.520	2.656	3.603	0.893	0.268	0.181	0.083
1995	29.612	14.001	11.367	5.376	5.812	2.059	1.464	1.158	1.499	0.420	0.126	0.085
1996	25.339	23.625	10.018	7.026	2.758	2.678	0.842	0.628	0.474	0.695	0.195	0.058
1997	16.623	20.279	17.181	6.406	3.815	1.362	1.191	0.391	0.279	0.235	0.345	0.097
1998	8.504	13.138	14.367	11.155	3.824	2.049	0.655	0.545	0.181	0.127	0.107	0.157
1999	29.747	6.765	9.558	9.733	7.056	2.219	1.087	0.334	0.281	0.092	0.065	0.054
2000	30.638	23.629	4.893	6.415	6.079	4.026	1.152	0.541	0.168	0.139	0.046	0.032
2001	52.970	24.291	16.961	3.244	3.940	3.393	2.032	0.556	0.264	0.081	0.067	0.022
2002	62.005	42.206	17.794	11.617	2.083	2.333	1.845	1.064	0.294	0.138	0.042	0.035
2003	71.584	49.273	30.581	11.976	7.284	1.195	1.219	0.924	0.539	0.147	0.069	0.021
2004	25.636	56.928	35.815	20.688	7.561	4.216	0.631	0.618	0.474	0.272	0.074	0.035
2005	73.888	20.013	37.896	22.870	12.788	4.670	2.590	0.374	0.339	0.230	0.132	0.036
2006	42.602	57.449	13.092	23.696	13.805	7.712	2.800	1.492	0.198	0.157	0.106	0.061
2007	19.529	33.028	37.114	8.064	14.063	8.185	4.544	1.581	0.773	0.089	0.071	0.048
2008	30.320	15.216	21.801	23.459	4.928	8.586	4.969	2.655	0.854	0.367	0.042	0.034
2009	49.344	23.484	9.788	13.360	13.841	2.905	5.029	2.788	1.364	0.379	0.163	0.019
2010	50.274	38.445	15.501	6.187	8.164	8.450	1.763	2.938	1.506	0.647	0.180	0.077
2011	60.578	39.484	26.270	10.214	3.962	5.225	5.382	1.087	1.696	0.780	0.335	0.093
2012	40.198	47.865	27.700	17.866	6.780	2.628	3.452	3.460	0.661	0.939	0.432	0.185
2013	43.104	31.858	34.023	19.137	12.072	4.578	1.768	2.265	2.156	0.378	0.537	0.247

TAFLA 3.3.9

Ufsi. Veiðidánartala eftir aldri á árunum 1980–2012.

Saithe. *Fishing mortality by age in the years 1980–2012.*

Ár	Aldur *Age*											
Year	3	4	5	6	7	8	9	10	11	12	13	14
1980	0.016	0.085	0.178	0.295	0.363	0.439	0.408	0.439	0.359	0.359	0.359	0.359
1981	0.015	0.076	0.159	0.264	0.325	0.392	0.365	0.392	0.321	0.321	0.321	0.321
1982	0.017	0.088	0.183	0.305	0.375	0.452	0.421	0.452	0.370	0.370	0.370	0.370
1983	0.014	0.070	0.147	0.244	0.300	0.363	0.337	0.363	0.297	0.297	0.297	0.297
1984	0.013	0.067	0.140	0.232	0.286	0.345	0.321	0.345	0.283	0.283	0.283	0.283
1985	0.014	0.071	0.148	0.246	0.303	0.366	0.341	0.366	0.300	0.300	0.300	0.300
1986	0.016	0.082	0.171	0.284	0.349	0.421	0.392	0.421	0.345	0.345	0.345	0.345
1987	0.020	0.102	0.212	0.353	0.434	0.524	0.488	0.524	0.429	0.429	0.429	0.429
1988	0.018	0.093	0.195	0.324	0.398	0.481	0.448	0.481	0.394	0.394	0.394	0.394
1989	0.017	0.089	0.185	0.308	0.379	0.457	0.425	0.457	0.374	0.374	0.374	0.374
1990	0.019	0.101	0.211	0.351	0.431	0.521	0.485	0.521	0.426	0.426	0.426	0.426
1991	0.021	0.109	0.226	0.376	0.463	0.559	0.520	0.559	0.457	0.457	0.457	0.457
1992	0.020	0.106	0.222	0.368	0.453	0.547	0.509	0.547	0.448	0.448	0.448	0.448
1993	0.022	0.116	0.241	0.401	0.493	0.595	0.554	0.595	0.487	0.487	0.487	0.487
1994	0.025	0.132	0.274	0.456	0.561	0.677	0.630	0.677	0.554	0.554	0.554	0.554
1995	0.026	0.135	0.281	0.467	0.575	0.694	0.646	0.694	0.568	0.568	0.568	0.568
1996	0.023	0.119	0.247	0.411	0.505	0.610	0.568	0.610	0.500	0.500	0.500	0.500
1997	0.035	0.145	0.232	0.316	0.421	0.532	0.581	0.569	0.586	0.586	0.586	0.586
1998	0.029	0.118	0.189	0.258	0.344	0.435	0.475	0.465	0.479	0.479	0.479	0.479
1999	0.030	0.124	0.199	0.271	0.361	0.456	0.498	0.487	0.502	0.502	0.502	0.502
2000	0.032	0.132	0.211	0.287	0.383	0.484	0.529	0.517	0.533	0.533	0.533	0.533
2001	0.027	0.111	0.178	0.243	0.324	0.409	0.447	0.438	0.451	0.451	0.451	0.451
2002	0.030	0.122	0.196	0.267	0.356	0.449	0.491	0.481	0.495	0.495	0.495	0.495
2003	0.029	0.119	0.191	0.260	0.347	0.438	0.478	0.468	0.483	0.483	0.483	0.483
2004	0.048	0.207	0.249	0.281	0.282	0.287	0.324	0.400	0.524	0.524	0.524	0.524
2005	0.052	0.224	0.270	0.305	0.306	0.312	0.352	0.433	0.569	0.569	0.569	0.569
2006	0.055	0.237	0.285	0.322	0.323	0.329	0.371	0.458	0.600	0.600	0.600	0.600
2007	0.050	0.215	0.259	0.293	0.293	0.299	0.337	0.416	0.546	0.546	0.546	0.546
2008	0.056	0.241	0.290	0.328	0.329	0.335	0.378	0.466	0.611	0.611	0.611	0.611
2009	0.050	0.215	0.259	0.293	0.293	0.299	0.338	0.416	0.546	0.546	0.546	0.546
2010	0.042	0.181	0.217	0.246	0.246	0.251	0.283	0.349	0.458	0.458	0.458	0.458
2011	0.036	0.154	0.186	0.210	0.210	0.215	0.242	0.298	0.391	0.391	0.391	0.391
2012	0.033	0.141	0.170	0.192	0.193	0.196	0.221	0.273	0.358	0.358	0.358	0.358

TAFLA 3.3.10

Ufsi. Forsendur í framreikningum á þróun stofnsins árin 2014–2015.
Náttúrulegur dánarstuðull M=0.2.

Saithe. *Input parameters for catch and stock projection for the years 2014–2015.*
Natural mortality coefficient, M=0.2.

Aldur *Age*	Stofnstærð *Stock size*	Veiðimynstur *Selectivity*	Meðalþyngd (kg) í afla og stofni *Mean weight (kg) in catch and stock*	Kynþroskahlutfall *Maturity at age*
	2013	2013–2014	2013–2015	2013–2015
3	43.104	0.09	1.207	0.00
4	31.858	0.39	1.635	0.12
5	34.023	0.47	2.330	0.25
6	19.137	0.54	3.248	0.44
7	12.072	0.54	4.281	0.66
8	4.578	0.55	5.387	0.82
9	1.768	0.62	6.550	0.92
10	2.265	0.76	6.401	1.00
11	2.156	1.00	6.940	1.00
12	0.378	1.00	7.697	1.00
13	0.537	1.00	8.615	1.00
14	0.247	1.00	9.447	1.00

Stofnstærð: Stofnstærð í milljónum fiska í ársbyrjun 2013.

Veiðimynstur: Hlutfallsleg fiskveiðidánartala hvers aldursflokks. Valferill metinn í stofnlíkani fyrir árin 2004–2012.

Meðalþyngd í afla og stofni: Meðalþyngd 4–9 ára spáð út frá meðalþyngd sama aldursflokks í afla 2012 og meðalþyngd í stofnmælingu 2013. Meðalþyngd annarra aldurshópa spáð út frá meðaltali í afla síðustu þriggja ára. Spágildi fyrir 2013 einnig notuð 2014–2015.

Hlutfall kynþroska: Jafnaður meðalkynþroski eftir aldri í stofnmælingu 2013.

Stock size: *Stock size in millions in 2013.*

Selectivity: *Relative fishing mortality on each age group. Selectivity estimated in separable stock model for the period 2004–2012.*

Mean weight at age in catch: *Mean weight of ages 4–9 predicted from weight at age in landings of same year class in 2012 and weight at age in spring survey 2013. Mean weight of other ages predicted from the average of last three years of catch weights. Predicted values for 2013 also used for 2014–2015.*

Maturity at age: *Smoothed maturity at age from the spring survey 2013.*

TAFLA 3.4.1

Gullkarfi. Afli (í tonnum) á Íslandsmiðum ásamt heildarafla (Ísland, Grænland, Færeyjar) 1978–2012.
Golden redfish. *Landings (in tonnes) of Sebastes norvegicus from Icelandic waters and total landings (Iceland, Greenland, Faeroes) 1978–2012.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals Íslandsmið *Total Iceland*	Önnur svæði *Other areas*	Samtals *Total*
1978	29 625	1 675	31 300	17 829	49 129
1979	54 805	1 811	56 616	20 598	77 214
1980	59 931	2 121	62 052	27 125	89 177
1981	74 107	1 721	75 828	26 149	101 977
1982	96 772	1 127	97 899	32 530	130 429
1983	86 164	1 248	87 412	19 090	106 502
1984	83 999	767	84 766	11 354	96 120
1985	66 801	511	67 312	11 556	78 868
1986	67 242	530	67 772	9 576	77 348
1987	68 636	576	69 212	7 915	77 127
1988	79 834	638	80 472	9 517	89 989
1989	51 523	329	51 852	5 198	57 050
1990	62 677	479	63 156	3 476	66 632
1991	49 392	285	49 677	6 687	56 364
1992	50 968	496	51 464	4 246	55 710
1993	45 356	534	45 890	4 460	50 350
1994	38 417	252	38 669	3 846	42 515
1995	40 995	521	41 516	3 249	44 765
1996	33 249	309	33 558	3 039	36 597
1997	36 100	242	36 342	3 419	39 761
1998	36 481	290	36 771	3 054	39 825
1999	39 461	363	39 824	2 216	42 040
2000	40 758	429	41 187	2 363	43 550
2001	34 634	433	35 067	2 259	37 326
2002	48 454	116	48 570	2 522	51 092
2003	36 461	116	36 577	2 643	39 220
2004	31 421	265	31 686	1 765	33 451
2005	42 404	189	42 593	2 736	45 329
2006	41 363	158	41 521	690	42 211
2007	38 276	88	38 364	772	39 136
2008	45 416	122	45 538	713	46 251
2009	38 294	148	38 442	736	39 177
2010	36 031	128	36 159	2 508	38 648
2011	43 630	143	43 773	2 223	45 996
2012[1)]	42 937	166	43 103	2 190	45 293

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.5.1

Djúpkarfi. Afli (í tonnum) á Íslandsmiðum 1978–2012.
Demersal deep sea redfish. *Landings (in tonnes) of Sebastes mentella from Icelandic waters 1978–2012.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*
1978	3 693	209	3 902
1979	7 448	246	7 694
1980	9 849	348	10 197
1981	19 242	447	19 689
1982	18 279	213	18 492
1983	36 585	530	37 115
1984	24 271	222	24 493
1985	24 580	188	24 768
1986	18 750	148	18 898
1987	19 132	161	19 293
1988	14 177	113	14 290
1989	40 013	256	40 269
1990	28 214	215	28 429
1991	47 378	273	47 651
1992	43 414	-	43 414
1993	51 221	-	51 221
1994	56 674	46	56 720
1995	48 479	229	48 708
1996	34 508	233	34 741
1997	37 876	-	37 876
1998	32 841	284	33 125
1999	27 475	1 115	28 590
2000	30 185	1 208	31 393
2001	15 415	1 815	17 230
2002	17 870	1 175	19 045
2003	26 295	2 183	28 478
2004	16 226	1 338	17 564
2005	19 109	1 454	20 563
2006	16 339	869	17 208
2007	17 091	282	17 373
2008	24 123	-	24 123
2009	19 430	-	19 430
2010	17 642	-	17 642
2011	11 738	-	11 738
2012[1)]	11 965	-	11 965

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.5.2

Úthafskarfi – efri og neðri stofnar. Afli (í tonnum) á Íslandsmiðum ásamt heildarafla (Grænlandshaf og aðliggjandi hafsvæði) 1982–2012 samkvæmt gögnum Alþjóðahafrannsóknaráðsins.

Pelagic deep sea redfish – shallow and deep stocks. *Landings (in tonnes) of S. mentella from Icelandic waters and total catches (Irminger Sea and adjacent waters) 1982–2012 according to ICES data.*

	Úthafskarfi – efri stofn *Shallow pelagic S. mentella*			Úthafskarfi – neðri stofn *Deep pelagic S. mentella*		
Ár *Year*	Íslandsmið *Iceland*	Önnur mið *Other areas*	Samtals *Total*	Íslandsmið *Iceland*	Önnur mið *Other areas*	Samtals *Total*
1982		60 581	60 581			
1983		60 234	60 234			
1984		64 832	64 832			
1985		71 671	71 671			
1986		105 107	105			
1987		91 169	91 169			
1988		91 419	91 419			
1989		38 784	38 784			
1990		31 901	31 901			
1991		27 179	27 179	-	59	59
1992	106	62 457	62 564	1 862	1 536	3 398
1993	-	100 771	100	2 603	12 461	15 064
1994	665	96 204	96 869	14 807	37 013	51 820
1995	77	100 058	100	1 466	74 241	75 707
1996	16	41 753	41 770	4 728	133 825	138 552
1997	321	27 425	27 746	14 980	80 099	95 079
1998	284	23 866	24 150	40 328	52 490	92 818
1999	165	25 347	25 512	36 359	47 793	84 153
2000	3 375	29 841	33 216	41 302	51 811	93 113
2001	228	41 597	41 825	27 920	59 073	86 993
2002	10	43 205	43 216	37 269	65 860	103 128
2003	49	56 639	56 688	46 627	57 669	104 296
2004	10	33 941	33 951	14 446	77 508	91 954
2005	-	28 229	28 229	11 726	33 759	45 485
2006	-	15 734	15 734	16 452	50 836	67 288
2007	71	6 054	6 126	17 769	40 748	58 516
2008	32	2 027	2 059	4 602	25 443	30 045
2009	-	2 380	2 380	16 828	37 578	54 406
2010	15	2 183	2 198	8 552	50 736	59 288
2011	-	234	234	0	47 333	47 333
2012	28	3 145	3 173	5 530	27 276	32 806

TAFLA 3.5.3

Úthafskarfi – efri stofn. Afli (í tonnum) mismunandi þjóða 1982–2012.

Pelagic deep sea redfish – shallow stock. *Landings (in tonnes) of S. mentella by nations 1982–2012.*

Ár *Year*	Ísland *Iceland*	Rússland *Russia*	Þýskaland *Germany*	Færeyjar *Faeroes*	Grænland *Greenland*	Noregur *Norway*	Spánn *Spain*	Portúgal *Portugal*	Litháen *Lithuania*	Eistland *Estonia*	Lettland *Latvia*	Aðrar þjóðir[1)] *Other nations*	Samtals *Total*
1982	-	60 000	-	-	-	-	-	-	-	-	-	581	60 581
1983	-	60 079	155	-	-	-	-	-	-	-	-	-	60 234
1984	-	60 643	989	-	-	-	-	-	-	-	-	3 200	64 832
1985	-	60 273	5 438	-	-	-	-	-	-	-	-	5 960	71 671
1986	-	84 994	8 574	5	-	-	-	-	-	-	-	11 534	105 107
1987	-	71 469	7 023	382	-	-	-	-	-	-	-	12 295	91 169
1988	-	65 026	16 848	1 090	-	-	-	-	-	-	-	8 455	91 419
1989	3 816	22 720	6 797	226	567	-	-	-	-	-	-	4 658	38 784
1990	4 537	9 632	7 957	-	-	7 085	-	-	-	-	-	2 690	31 901
1991	8 724	9 747	201	115	-	6 197	-	-	-	2 195	-	-	27 179
1992	12 080	15 733	6 447	3 765	9	14 654	-	-	6 656	1 810	780	630	62 564
1993	10 167	25 229	16 677	6 812	710	14 112	-	-	7 899	6 365	6 803	5 998	100 771
1994	5 897	16 349	15 133	2 896	-	6 834	-	1 510	7 404	17 875	13 205	9 767	96 869
1995	8 733	28 314	10 714	3 667	277	4 288	4 327	2 170	16 025	11 798	3 502	6 319	100 136
1996	5 760	9 348	5 696	2 523	1 866	1 681	1 671	476	5 618	3 741	572	2 819	41 770
1997	4 446	3 693	9 276	3 510	-	330	1 812	367	-	3 405	-	906	27 746
1998	1 983	89	9 679	2 990	1 161	701	1 819	60	1 734	3 892	-	42	24 150
1999	3 662	6 538	8 271	1 190	998	2 098	447	62	-	2 055	-	189	25 512
2000	3 766	14 373	5 672	486	956	2 124	1 154	37	430	4 218	-	-	33 216
2001	14 745	5 964	4 755	4 364	1 083	947	1 433	256	8 269	9	-	-	41 825
2002	5 229	13 958	5 354	719	657	1 094	1 005	878	12 052	-	1 841	428	43 216
2003	4 274	15 418	3 579	1 955	1 047	3 214	1 461	1 926	21 629	-	1 269	917	56 688
2004	5 728	13 208	1 126	777	750	2 721	1 679	2 133	3 698	-	1 114	1 018	33 951
2005	3 086	15 562	1 152	210	-	624	1 557	2 780	1 169	-	919	1 170	28 229
2006	1 293	4 953	994	334	-	280	3 576	1 372	466	-	1 803	663	15 734
2007	71	4 037	-	98	-	-	339	529	467	209	186	189	6 126
2008	63	1 597	-	319	-	-	36	-	8	-	-	-	2 059
2009	5	649	-	87	-	-	1 438	-	138	-	-	-	2 380
2010	22	567	-	653	-	12	16	377	551	-	-	-	2 198
2011	72	-	-	162	-	-	-	-	-	-	-	-	234
2012	28	3 145	-	-	-	-	-	-	-	-	-	-	3 173

[1)] Búlgaría, Kanada, Frakkland, Japan, Holland, Pólland, Bretland, Úkraína.
Bulgaria, Canada, France, Japan, Netherlands, Poland, United Kingdom, Ukraine.

TAFLA 3.5.4

Úthafskarfi – neðri stofn. Afli (í tonnum) mismunandi þjóða 1982–2012.

Pelagic deep sea redfish – deep stock. *Landings (in tonnes) of S. mentella by nations 1982–2012.*

Ár	Ísland	Rússland	Þýskaland	Færeyjar	Grænland	Noregur	Spánn	Portúgal	Litháen	Eistland	Lettland	Aðrar þjóðir[1)]	Samtals
Year	*Iceland*	*Russia*	*Germany*	*Faeroes*	*Greenland*	*Norway*	*Spain*	*Portugal*	*Lithuania*	*Estonia*	*Latvia*	*Other nations*	*Total*
1990	-	-	-	-	-	-	-	-	-	-	-	-	-
1991	59	-	-	-	-	-	-	-	-	-	-	-	59
1992	3 398	-	-	-	-	-	-	-	-	-	-	-	3 398
1993	12 741	-	1 135	310	-	878	-	-	-	-	-	-	15 064
1994	47 435	1 465	2 019	-	-	523	-	377	-	-	-	-	51 820
1995	25 898	15 868	8 271	1 572	1 579	3 169	227	2 955	6 868	5 056	1 501	2 744	75 707
1996	57 143	36 400	15 549	3 748	1 671	5 161	5 558	1 903	5 031	3 351	512	2 524	138 552
1997	36 830	33 237	11 200	435	-	2 849	6 895	3 307	-	315	-	12	95 079
1998	46 537	25 748	8 368	4 484	302	438	2 758	4 073	34	76	-	1	92 818
1999	40 261	11 419	8 218	3 466	3 271	3 337	9 885	4 240	-	53	-	5	84 153
2000	41 466	14 851	6 827	2 367	3 327	3 108	9 740	3 694	-	7 733	-	-	93 113
2001	27 727	23 810	5 914	3 377	2 360	4 275	8 649	2 488	7 515	878	-	-	86 993
2002	39 263	25 309	7 858	3 664	3 442	4 197	7 402	2 208	9 771	15	-	-	103 128
2003	44 620	28 638	7 028	3 938	3 403	5 185	9 374	2 109	-	-	-	-	104 296
2004	31 098	31 067	2 251	4 670	2 419	6 277	9 996	2 286	-	-	-	1 889	91 954
2005	12 919	16 323	1 836	1 800	1 431	3 950	3 871	1 088	1 027	-	-	1 240	45 485
2006	20 948	23 670	1 830	3 498	744	5 968	6 673	1 313	1 294	-	-	1 356	67 288
2007	18 097	21 337	1 110	2 902	1 961	4 628	3 810	2 067	1 394	-	575	636	58 516
2008	6 722	15 106	-	2 632	1 170	571	1 179	1 733	749	-	-	219	30 045
2009	15 524	25 309	-	3 403	1 519	-	2 907	1 596	2 613	-	1 355	178	54 406
2010	14 772	22 803	-	3 195	1 932	2 388	7 801	2 203	2 228	-	1 963	3	59 288
2011	11 994	22 364	1 787	2 028	-	1 066	4 361	1 540	1 348	-	845	-	47 333
2012	5 912	18 377	1 523	1 438	-	3 362	632	250	588	-	724	-	32 806

[1)] Búlgaría, Kanada, Frakkland, Japan, Holland, Pólland, Bretland, Úkraína.
Bulgaria, Canada, France, Japan, Netherlands, Poland, United Kingdom, Ukraine.

TAFLA 3.6.1
Grálúða. Afli (í tonnum) árin 1961–2012.
Greenland halibut. *Landings (in tonnes) 1961–2012.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*
1961	-	2 513	2 513
1962	-	2 730	2 730
1963	-	3 901	3 901
1964	-	4 740	4 740
1965	-	6 755	6 755
1966	6	8 046	8 052
1967	1	30 698	30 699
1968	1	21 871	21 872
1969	5 856	18 465	24 321
1970	7 343	26 480	33 823
1971	5 020	23 953	28 973
1972	4 640	21 832	26 472
1973	2 115	18 348	20 463
1974	2 842	33 438	36 280
1975	1 212	22 282	23 494

	Íslandsmið (Svæði Va) [2] *Icelandic waters (Va)* [2]		Önnur svæði (XII, XIV,Vb,VI) [2] *Other areas (XII, XIV,Vb, VI)* [2]			
Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Færeyjar *Faeroes*	Austur-Grænland *East Greenland*	Önnur svæði[3] *Other areas*[3]	Samtals *Total*
1976	1 686	3 761	324	273	-	6 044
1977	10 090	5 589	658	306	-	16 643
1978	11 319	269	595	2 176	-	14 359
1979	16 934	42	409	6 231	-	23 616
1980	27 836	91	1 177	2 148	-	31 252
1981	15 455	325	566	2 893	-	19 239
1982	28 300	669	1 032	2 440	-	32 441
1983	28 429	33	1 436	1 060	-	30 958
1984	30 163	46	3 065	835	-	34 109
1985	29 319	2	2 126	753	-	32 200
1986	31 142	-	940	1 017	-	33 099
1987	44 889	15	1 043	820	-	46 767
1988	49 189	379	969	770	-	51 307
1989	58 497	942	1 606	518	-	61 563
1990	36 679	751	1 282	736	-	39 448
1991	34 875	273	1 662	875	-	37 685
1992	32 026	23	2 269	1 240	-	35 558
1993	33 972	166	4 470	2 275	-	40 883
1994	27 696	912	5 224	3 180	-	37 012
1995	27 391	15	3 832	5 077	-	36 300
1996	22 072	18	6 469	6 914	369	35 826
1997	16 766	26	4 917	6 688	1 870	30 267
1998	10 580	15	3 825	5 940	-	20 360
1999	11 085	23	4 265	4 998	-	20 371
2000	14 492	27	5 092	6 758	-	26 569
2001	16 590	118	3 951	6 588	-	27 291
2002	19 229	466	2 694	6 750	102	29 258
2003	20 353	44	2 194	8 017	-	30 587
2004	15 478	21	1 717	9 590	-	26 785
2005	13 023	218	892	10 185	-	24 318
2006	11 798	19	873	8 589	184	21 463
2007	9 580	945	1 060	10 261	27	21 873
2008	11 672	187	1 759	9 102	1195	24 481
2009	15 089	693	1 739	9 805	15	27 341
2010	13 294	834	1 413	10 402	52	25 995
2011	13 216	856	1 489	10 761	124	26 446
2012[1]	13 749	628	2 162	12 475	97	29 111

[1] Bráðabirgðatölur. *Provisional figures*.
[2] Svæðaskipting Alþjóðahafrannsóknaráðsins. *ICES statistical areas*.
[3] Afli á svæði XII og VI. *ICES statistical areas XII and VI.*

TAFLA 3.7.1
Lúða. Afli (í tonnum) á Íslandsmiðum 1950–2012.
Halibut. *Landings (in tonnes) from Icelandic waters 1950–2012.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*
1950	1 323	4 577	5 900
1951	2 364	4 220	6 585
1952	1 823	3 698	5 521
1953	1 073	3 701	4 774
1954	754	2 728	3 482
1955	410	2 202	2 612
1956	710	1 908	2 618
1957	1 498	2 894	4 392
1958	1 121	4 397	5 518
1959	1 126	3 971	5 097
1960	1 701	3 771	5 472
1961	1 618	2 397	4 015
1962	1 517	3 407	4 924
1963	1 202	3 451	4 653
1964	1 089	2 670	3 759
1965	946	3 114	4 060
1966	898	1 749	2 647
1967	1 018	1 787	2 805
1968	940	1 151	2 091
1969	842	1 235	2 077
1970	1 103	2 109	3 212
1971	1 284	1 828	3 112
1972	1 088	1 237	2 325
1973	1 032	968	2 000
1974	977	785	1 762
1975	1 168	726	1 894
1976	1 632	665	2 297
1977	1 717	609	2 326
1978	1 462	375	1 837
1979	1 587	460	2 047
1980	1 215	450	1 665
1981	1 012	186	1 198
1982	1 174	133	1 307
1983	1 309	436	1 745
1984	1 700	354	2 054
1985	1 695	246	1 941
1986	1 623	362	1 985
1987	1 537	577	2 114
1988	1 544	460	2 004
1989	1 259	468	1 727
1990	1 639	278	1 917
1991	1 895	429	2 324
1992	1 155	386	1 541
1993	1 363	385	1 748
1994	1 195	391	1 586
1995	887	232	1 119
1996	837	139	976
1997	646	113	759
1998	501	181	682
1999	567	202	769
2000	493	74	567
2001	589	79	668
2002	683	86	769
2003	637	54	691
2004	556	114	670
2005	516	114	630
2006	447	112	559
2007	419	97	516
2008	472	57	529
2009	498	50	548
2010	528	29	557
2011	532	23	555
2012[1)]	35	-	35

[1)] Bráðabirgðatölur. *Provisional figures*.

TAFLA 3.8.1

Skarkoli. Afli (í tonnum) á Íslandsmiðum 1950–2012.

Plaice. *Landings (in tonnes) from Icelandic waters 1950–2012.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*
1950	3 834	5 338	9 172
1951	4 183	4 256	8 439
1952	1 457	3 121	4 578
1953	350	4 343	4 693
1954	289	5 374	5 663
1955	259	7 474	7 733
1956	515	7 373	7 888
1957	1 622	7 981	9 603
1958	648	7 515	8 163
1959	921	7 507	8 428
1960	3 405	4 654	8 059
1961	4 226	6 775	11 001
1962	5 010	6 401	11 411
1963	3 325	6 333	9 658
1964	5 336	4 032	9 368
1965	7 286	3 704	10 990
1966	7 354	4 521	11 875
1967	5 644	5 736	11 380
1968	6 144	4 126	10 270
1969	10 764	3 267	14 031
1970	8 117	1 901	10 018
1971	7 179	2 509	9 688
1972	5 129	1 367	6 496
1973	4 137	641	4 778
1974	3 936	85	4 021
1975	4 399	176	4 575
1976	4 993	32	5 025
1977	5 267	3	5 270
1978	4 499	5	4 504
1979	4 491	1	4 492
1980	5 145	-	5 145
1981	3 840	35	3 875
1982	6 303	28	6 331
1983	8 552	-	8 552
1984	11 334	1	11 335
1985	14 508	2	14 510
1986	12 738	-	12 738
1987	11 192	-	11 192
1988	14 078	9	14 087
1989	11 330	-	11 330
1990	11 400	-	11 400
1991	10 792	-	10 792
1992	10 494	-	10 494
1993	12 522	-	12 522
1994	11 854	-	11 854
1995	10 649	-	10 649
1996	11 063	-	11 063
1997	10 540	-	10 540
1998	7 106	-	7 106
1999	7 064	-	7 064
2000	5 218	-	5 218
2001	4 905	-	4 905
2002	5 126	-	5 126
2003	5 236	-	5 236
2004	5 693	-	5 693
2005	5 794	-	5 794
2006	6 369	-	6 369
2007	5 816	-	5 816
2008	6 718	-	6 718
2009	6 316	-	6 316
2010	5 983	-	5 983
2011	4 943	-	4 943
2012[1)]	5 926	-	5 926

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.9.1
Sandkoli. Afli (í tonnum) á Íslandsmiðum árin 1984–2012.
Dab. *Landings (in tonnes) from Icelandic waters 1984–2012.*

Ár *Year*	Afli *Catch*
1984	447
1985	950
1986	1 258
1987	1 186
1988	3 780
1989	2 238
1990	1 898
1991	2 632
1992	3 045
1993	4 233
1994	5 159
1995	5 557
1996	7 954
1997	7 891
1998	5 061
1999	3 981
2000	3 015
2001	4 373
2002	4 358
2003	4 212
2004	2 953
2005	2 115
2006	1 080
2007	810
2008	792
2009	882
2010	612
2011	903
2012[1)]	860

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.10.1
Skrápflúra. Afli (í tonnum) á Íslandsmiðum 1987–2012.
Long rough dab. *Landings (in tonnes) from Icelandic waters 1987–2012.*

Ár *Year*	Afli *Catch*
1987	32
1988	166
1989	565
1990	653
1991	1 710
1992	1 468
1993	1 350
1994	2 694
1995	5 356
1996	6 435
1997	5 709
1998	3 118
1999	3 823
2000	3 176
2001	3 469
2002	3 579
2003	2 830
2004	2 018
2005	874
2006	744
2007	358
2008	275
2009	290
2010	219
2011	178
2012[1)]	140

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.11.1
Langlúra. Afli (í tonnum) á Íslandsmiðum 1950–2012.
Witch. *Landings (in tonnes) from Icelandic waters 1950–2012.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*
1950	88	1 018	1 106
1951	81	1 083	1 164
1952	30	720	750
1953	138	456	594
1954	112	666	778
1955	34	741	775
1956	167	715	882
1957	200	892	1 092
1958	372	814	1 186
1959	646	653	1 299
1960	931	486	1 417
1961	725	570	1 295
1962	559	644	1 203
1963	431	614	1 045
1964	469	355	824
1965	412	473	885
1966	122	237	359
1967	162	224	386
1968	132	226	358
1969	166	213	379
1970	169	212	381
1971	125	221	346
1972	138	65	203
1973	22	37	59
1974	52	26	78
1975	69	10	79
1976	143	4	147
1977	115	-	115
1978	120	-	120
1979	140	-	140
1980	19	-	19
1981	3	-	3
1982	54	-	54
1983	10	-	10
1984	11	-	11
1985	32	-	32
1986	335	-	335
1987	4 566	-	4 566
1988	2 974	-	2 974
1989	2 267	-	2 267
1990	1 278	-	1 278
1991	1 775	-	1 775
1992	2 562	-	2 562
1993	1 659	-	1 659
1994	1 772	-	1 772
1995	1 810	-	1 810
1996	1 486	-	1 486
1997	1 270	-	1 270
1998	948	-	948
1999	1 406	-	1 406
2000	1 098	-	1 098
2001	1 133	-	1 133
2002	1 147	-	1 147
2003	1 947	-	1 947
2004	2 124	-	2 124
2005	2 324	-	2 324
2006	2 029	-	2 029
2007	1 805	-	1 805
2008	1 427	-	1 427
2009	1 789	-	1 789
2010	1 326	-	1 326
2011	1 323	-	1 323
2012[1)]	1 312	-	1 312

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.12.1
Þykkvalúra. Afli (í tonnum) á Íslandsmiðum árin 1951–2012.
Lemon sole. *Landings (in tonnes) from Icelandic waters 1951–2012.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*
1951	634	1 389	2 023
1952	347	1 347	1 694
1953	128	1 500	1 628
1954	66	1 539	1 605
1955	30	1 299	1 329
1956	336	1 148	1 484
1957	1 230	1 348	2 578
1958	159	1 453	1 612
1959	224	1 400	1 624
1960	646	1 569	2 215
1961	1 314	1 346	2 660
1962	1 183	1 384	2 567
1963	1 077	1 802	2 879
1964	660	1 692	2 352
1965	774	1 786	2 560
1966	564	978	1 542
1967	347	1 071	1 418
1968	497	873	1 370
1969	453	639	1 092
1970	328	563	891
1971	283	530	813
1972	255	526	781
1973	175	300	475
1974	84	248	332
1975	67	259	326
1976	63	139	202
1977	11	27	38
1978	24	7	31
1979	47	7	54
1980	63	16	79
1981	77	22	99
1982	86	12	98
1983	112	7	119
1984	73	7	80
1985	368	13	381
1986	489	8	497
1987	677	5	682
1988	857	5	862
1989	805	6	811
1990	704	2	706
1991	1 095	3	1 098
1992	912	-	912
1993	716	-	716
1994	693	-	693
1995	741	-	741
1996	984	-	984
1997	1 135	-	1 135
1998	1 432	-	1 432
1999	1 860	-	1 860
2000	1 438	-	1 438
2001	1 371	-	1 371
2002	950	-	950
2003	1 246	1	1 247
2004	2 209	-	2 209
2005	2 505	-	2 505
2006	2 688	-	2 688
2007	2 662	-	2 662
2008	2 634	-	2 634
2009	2 629	-	2 629
2010	1 970	-	1 970
2011	1 900	-	1 900
2012[1)]	1 614	-	1 614

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.13.1
Stórkjafta. Afli (í tonnum) á Íslandsmiðum árin 1951–2012.
Megrim. *Landings (in tonnes) from Icelandic waters 1951–2012.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*
1951	76	562	638
1952	69	434	503
1953	139	534	673
1954	166	532	698
1955	35	562	597
1956	89	470	559
1957	104	606	710
1958	170	531	701
1959	148	452	600
1960	133	415	548
1961	39	458	497
1962	111	398	509
1963	66	405	471
1964	69	371	440
1965	254	467	721
1966	102	280	382
1967	46	368	414
1968	41	454	495
1969	172	488	660
1970	117	521	638
1971	61	523	584
1972	64	371	435
1973	81	324	405
1974	27	283	310
1975	7	228	235
1976	17	151	168
1977	3	165	168
1978	11	125	136
1979	10	101	111
1980	104	114	218
1981	1	70	71
1982	3	35	38
1983	4	62	66
1984	9	95	104
1985	17	44	61
1986	42	35	77
1987	162	21	183
1988	283	65	348
1989	345	51	396
1990	154	22	176
1991	186	20	206
1992	246	-	246
1993	224	-	224
1994	301	2	303
1995	405	-	405
1996	419	-	419
1997	281	-	281
1998	221	-	221
1999	123	-	123
2000	97	-	97
2001	96	-	96
2002	78	-	78
2003	67	-	67
2004	121	-	121
2005	147	-	147
2006	284	-	284
2007	187	-	187
2008	196	-	196
2009	317	-	317
2010	251	-	251
2011	320	-	320
2012[1)]	411	-	411

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.14.1

Steinbítur. Afli (í tonnum) á Íslandsmiðum 1950–2012.

Atlantic wolffish. *Landings (in tonnes) from Icelandic waters in 1950–2012.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*
1950	6 611	6 203	12 814
1951	8 259	9 014	17 273
1952	11 628	13 424	25 052
1953	12 331	11 710	24 041
1954	6 354	9 568	15 922
1955	4 562	10 119	14 681
1956	6 509	11 419	17 928
1957	11 172	11 165	22 337
1958	10 811	13 179	23 990
1959	9 677	9 215	18 892
1960	9 429	9 135	18 564
1961	12 600	7 855	20 455
1962	13 192	10 039	23 231
1963	17 304	12 150	29 454
1964	8 183	9 009	17 192
1965	7 491	10 064	17 555
1966	7 891	6 908	14 799
1967	10 268	6 679	16 947
1968	8 972	5 920	14 892
1969	7 674	4 796	12 470
1970	5 706	4 846	10 552
1971	5 286	5 998	11 284
1972	9 036	5 063	14 099
1973	10 578	3 409	13 987
1974	11 977	3 304	15 281
1975	11 042	2 800	13 842
1976	11 485	1 849	13 334
1977	10 363	320	10 638
1978	10 452	78	10 530
1979	10 334	76	10 410
1980	8 527	90	8 617
1981	8 237	104	8 341
1982	8 341	96	8 437
1983	12 138	109	12 247
1984	10 203	60	10 263
1985	9 602	111	9 713
1986	12 120	24	12 144
1987	12 601	15	12 616
1988	14 583	64	14 647
1989	14 127	52	14 179
1990	14 425	136	14 561
1991	17 818	111	17 929
1992	16 059	82	16 141
1993	12 862	70	12 932
1994	12 692	53	12 745
1995	12 525	36	12 561
1996	14 578	30	14 608
1997	11 645	19	11 664
1998	11 842	42	11 883
1999	13 723	107	13 830
2000	15 044	25	15 069
2001	17 951	150	18 101
2002	14 304	93	14 397
2003	16 440	105	16 545
2004	13 184	76	13 260
2005	15 190	75	15 265
2006	16 407	43	16 450
2007	16 193	76	16 269
2008	14 551	45	14 596
2009	15 129	43	15 172
2010	12 565	28	12 593
2011	10 940	13	10 953
2012[1)]	10 253	66	10 319

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.15.1

Hlýri. Afli (í tonnum) á Íslandsmiðum 1965–2012.

Spotted wolffish. *Landings (in tonnes) from Icelandic waters in 1965–2012.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*
1965	7	-	7
1966	20	-	20
1967	28	-	28
1968	14	-	14
1969	43	-	43
1970	12	-	12
1971	29	-	29
1972	9	-	9
1973	17	9	26
1974	43	12	55
1975	29	-	29
1976	354	-	354
1977	758	-	758
1978	857	21	878
1979	843	23	866
1980	826	19	845
1981	869	13	882
1982	893	23	916
1983	929	49	978
1984	1 060	11	1 071
1985	1 018	3	1 021
1986	931	-	931
1987	1 196	-	1 196
1988	1 198	-	1 198
1989	637	-	637
1990	767	-	767
1991	813	-	813
1992	858	-	858
1993	1 247	-	1 247
1994	897	-	897
1995	703	-	703
1996	1 104	-	1 104
1997	1 164	-	1 164
1998	1 569	-	1 569
1999	1 546	-	1 546
2000	1 895	2	1 897
2001	2 126	1	2 127
2002	2 126	15	2 141
2003	2 404	36	2 440
2004	3 329	21	3 350
2005	3 262	16	3 278
2006	3 644	11	3 655
2007	2 724	1	2 725
2008	2 099	-	2 099
2009	2 313	1	2 314
2010	1 920	1	1 921
2011	1 646	-	1 646
2012[1)]	1 948	-	1 948

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.16.1
Blálanga. Afli (í tonnum) á Íslandsmiðum 1966–2012.
Blue ling. *Landings (in tonnes) from Icelandic waters in 1966–2012.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*
1966	134	3 411	3 545
1967	191	2 651	2 842
1968	199	2 531	2 730
1969	339	2 099	2 438
1970	394	2 163	2 557
1971	705	3 073	3 778
1972	586	2 330	2 916
1973	548	1 819	2 367
1974	331	2 165	2 496
1975	434	1 942	2 376
1976	624	1 414	2 038
1977	700	1 617	2 317
1978	1 237	194	1 431
1979	2 019	183	2 202
1980	8 133	412	8 545
1981	7 952	284	8 236
1982	5 945	626	6 571
1983	5 117	1 597	6 714
1984	3 122	384	3 506
1985	1 407	66	1 473
1986	1 771	251	2 022
1987	1 687	83	1 770
1988	1 889	278	2 167
1989	2 121	408	2 529
1990	1 989	1 029	3 018
1991	1 582	242	1 824
1992	2 558	322	2 880
1993	5 317	40	5 357
1994	1 831	90	1 921
1995	1 576	52	1 628
1996	1 284	52	1 336
1997	1 319	25	1 344
1998	1 086	25	1 111
1999	2 027	50	2 077
2000	1 560	54	1 736
2001	763	54	817
2002	1 274	50	1 324
2003	1 095	53	1 148
2004	1 085	91	1 176
2005	1 495	70	1 565
2006	1 736	71	1 807
2007	1 999	92	2 091
2008	3 653	105	3 758
2009	4 132	91	4 223
2010	6 377	523	6 900
2011	5 903	594	6 497
2012[1)]	4 207	203	4 410

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.17.1
Langa. Afli (í tonnum) á Íslandsmiðum 1950–2012.
Ling. *Landings (in tonnes) from Icelandic waters 1950–2012.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*
1950	3 551	6 947	10 497
1951	3 278	7 651	10 929
1952	4 420	7 034	11 454
1953	3 325	8 145	11 470
1954	3 442	9 653	13 095
1955	3 972	7 721	11 693
1956	3 823	7 702	11 525
1957	3 591	6 096	9 687
1958	4 195	7 468	11 663
1959	2 681	6 019	8 700
1960	6 774	6 996	13 770
1961	6 032	4 034	10 066
1962	7 073	5 044	12 117
1963	5 607	4 885	10 492
1964	4 976	5 398	10 374
1965	4 811	5 847	10 658
1966	4 559	5 473	10 032
1967	7 531	5 621	13 152
1968	8 697	5 829	14 526
1969	8 677	5 461	14 138
1970	8 345	6 017	14 362
1971	8 867	6 524	15 391
1972	6 085	4 092	10 177
1973	3 564	3 897	7 461
1974	3 868	2 907	6 775
1975	3 748	2 950	6 698
1976	4 538	2 103	6 641
1977	3 433	1 815	5 248
1978	3 439	1 559	4 998
1979	3 759	1 443	5 202
1980	3 149	1 475	4 624
1981	3 348	1 100	4 448
1982	3 733	1 252	4 985
1983	4 256	887	5 143
1984	3 304	574	3 878
1985	2 980	460	3 440
1986	2 948	648	3 596
1987	4 154	820	4 974
1988	5 083	763	5 846
1989	4 833	714	5 547
1990	5 115	441	5 556
1991	5 182	600	5 782
1992	4 546	560	5 106
1993	4 319	521	4 840
1994	4 053	551	4 604
1995	3 729	589	4 318
1996	3 670	607	4 277
1997	3 626	518	4 146
1998	3 603	713	4 316
1999	3 973	536	4 509
2000	3 221	475	3 696
2001	2 863	359	3 222
2002	2 830	426	3 256
2003	3 584	578	4 162
2004	3 718	744	4 462
2005	4 307	750	5 066
2006	6 287	1 119	7 406
2007	6 592	992	7 584
2008	7 736	1 552	9 288
2009	9 613	1 329	10 942
2010	9 867	1 263	11 130
2011	8 789	768	9 557
2012[1)]	10 693	1 059	11 752

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.18.1
Keila. Afli (í tonnum) á Íslandsmiðum 1963–2012.
Tusk. *Landings (in tonnes) from Icelandic waters 1963–2012.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*
1963	5 872	4 425	10 297
1964	3 532	4 214	7 746
1965	2.263	4 347	6 610
1966	2 107	2 468	4 575
1967	2 699	2 433	5 132
1968	4 604	2 028	6 632
1969	4 075	2 143	6 218
1970	4 357	2 630	6 987
1971	3 793	4 319	8 112
1972	2 815	3 645	6 460
1973	2 366	5 241	7 607
1974	1 857	4 679	6 536
1975	1 673	4 058	5 731
1976	2 935	4 177	7 112
1977	3 122	4 826	7 948
1978	3 352	2 980	6 332
1979	3 558	2 895	6 453
1980	3 089	3 801	6 890
1981	2 827	3 649	6 476
1982	2 804	3 076	5 880
1983	3 469	4 818	8 287
1984	3 430	2 262	5 692
1985	3 068	1 996	5 064
1986	2 548	2 832	5 380
1987	2 987	2 657	5 644
1988	3 087	3 777	6 864
1989	3 158	3 918	7 076
1990	4 816	2 475	7 291
1991	6 446	2 286	8 732
1992	6 442	1 567	8 009
1993	4 729	1 329	6 058
1994	4 615	1 212	5 827
1995	5 245	985	6 230
1996	5 226	1 014	6 240
1997	4 814	944	5 758
1998	4 118	1 027	5 145
1999	5 795	1 494	7 289
2000	4 711	1 528	6 239
2001	3 392	1 133	4 525
2002	3 906	1 342	5 248
2003	4 030	1 284	5 314
2004	3 124	1 530	4 654
2005	3 534	1 285	4 819
2006	5 060	1 541	6 601
2007	5 987	1 606	7 593
2008	6 932	1 243	8 175
2009	6 955	1 297	8 252
2010	6 919	2 057	8 976
2011	5 845	1 545	7 390
2012[1)]	6 341	1 420	7 761

[1)] Bráðabirgðatölur. *Provisional figures*.

TAFLA 3.19.1

Skötuselur. Afli (í tonnum) á Íslandsmiðum 1965–2012.
Anglerfish. *Landings (in tonnes) from Icelandic waters 1965–2012.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*
1965	510	469	979
1966	519	382	901
1967	796	391	1 187
1968	926	450	1 376
1969	957	384	1 341
1970	602	311	913
1971	606	178	784
1972	496	107	603
1973	329	72	401
1974	286	94	380
1975	386	67	453
1976	565	53	618
1977	727	43	770
1978	566	37	603
1979	438	56	494
1980	530	37	567
1981	441	21	462
1982	515	13	528
1983	544	42	586
1984	356	49	405
1985	455	15	470
1986	366	9	375
1987	362	20	382
1988	481	54	535
1989	494	-	494
1990	634	-	634
1991	772	-	772
1992	743	-	743
1993	685	-	685
1994	641	-	641
1995	548	-	548
1996	666	-	666
1997	789	-	789
1998	853	-	853
1999	973	-	973
2000	1 503	-	1 503
2001	1 353	-	1 353
2002	965	-	965
2003	1 677	1	1 678
2004	2 223	-	2 223
2005	2 855	-	2 855
2006	2 590	-	2 590
2007	2 791	-	2 791
2008	2 946	-	2 946
2009	4 069	-	4 069
2010	3 282	-	3 282
2011	3 228	-	3 228
2012[1)]	2 667	-	2 667

[1)] Bráðabirgðatölur. *Provisional figures*.

TAFLA 3.20.1

Grásleppa. Heildarafli og framleiðsla grásleppuhrogna árin 1971–2012 (í tunnum).
Lumpfish. *Landings (tonnes) of females and production of roe (barrels) during 1971–2012.*

Ár *Year*	Grásleppuafli *Female catch*	Hrognaframleiðsla *Roe production*
1971	5 481	11 249
1972	4 573	9 381
1973	8 163	16 746
1974	4 539	9 311
1975	8 365	17 160
1976	10 447	21 431
1977	7 613	15 618
1978	6 410	13 150
1979	6 260	12 842
1980	8 186	16 793
1981	11 152	22 878
1982	3 733	7 658
1983	5 385	11 047
1984	13 051	26 773
1985	11 152	22 878
1986	7 874	16 153
1987	11 152	22 878
1988	4 973	10 202
1989	6 581	13 500
1990	3 169	6 501
1991	4 826	9 900
1992	6 338	13 002
1993	4 338	8 899
1994	5 685	11 662
1995	5 489	11 260
1996	5 083	10 427
1997	6 520	13 375
1998	3 165	6 493
1999	3 373	6 919
2000	2 458	5 042
2001	3 271	6 710
2002	5 047	10 354
2003	6 230	12 780
2004	5 782	11 861
2005	3 731	7 654
2006	4 026	8 259
2007	3 301	6 772
2008	5 684	11 660
2009	5 615	11 519
2010	8 750	17 950
2011	5 196	10 657
2012[1)]	5 950	12 204

[1)] Bráðabirgðatölur. *Provisional figures*.

Heimild: Landssamband smábátaeigenda.
Source: National Association of Small Boat Owners.

TAFLA 3.20.2

Hrognkelsi. Afli á sóknareiningu (CPUE) og sókn árin 1980–2012 og stofnvísitala grásleppu og fjöldavísitala rauðmaga árin 1985–2013.

Lumpfish. *Catch per unit effort (CPUE) and derived effort 1980–2012 and female biomass and male abundance indices 1985–2013.*

Ár *Year*	Afli á sóknareiningu *CPUE*	Sókn *Effort*	Vísitala grásleppu *Female index*	Vísitala rauðmaga *Male index*
1980	5.5	4.3		
1981	6.3	5.1		
1982	4.7	2.3		
1983	3.9	4.0		
1984	5.0	7.6		
1985	4.4	7.3	13.09	1.40
1986	3.5	6.6	9.57	0.43
1987	4.2	7.7	12.08	1.05
1988	3.6	4.0	9.89	0.61
1989	5.1	3.7	12.72	1.93
1990	4.2	2.2	10.49	1.27
1991	3.1	4.5	4.29	0.34
1992	3.1	5.9	8.19	1.02
1993	2.1	6.1	6.11	0.88
1994	2.2	7.4	6.16	0.84
1995	2.1	7.5	4.68	0.92
1996	1.6	9.5	4.62	0.36
1997	2.3	8.3	5.16	0.77
1998	2.9	3.2	4.52	0.47
1999	3.8	2.6	7.10	0.39
2000	3.3	2.2	3.89	0.35
2001	3.3	2.8	5.56	0.33
2002	3.8	3.8	10.19	0.90
2003	4.0	4.5	7.32	0.44
2004	3.7	4.6	9.05	0.44
2005	4.1	2.6	7.19	0.41
2006	7.9	1.5	12.92	0.58
2007	7.5	1.3	8.89	0.55
2008	5.8	2.8	7.95	0.57
2009	4.0	4.0	8.30	0.30
2010	4.4	5.8	7.00	0.48
2011	3.8	3.9	4.96	0.33
2012	4.5[1)]	3.8[1)]	7.52	0.24
2013			4.28	0.20

[1)] Bráðabirgðatölur. *Provisional figures*.

TAFLA 3.21.1

Íslensk sumar- og vorgotssíld. Afli (í tonnum) á Íslandsmiðum 1951–2012/2013.

Icelandic summer- and spring-spawning herring. *Landings (in tonnes) in Icelandic waters 1951–2012/2013.*

	Íslensk sumargotssíld *Icelandic summer-spawning herring*		**Íslensk vorgotssíld** *Icelandic spring-spawning herring*
Ár *Year*	Afli *Catch*	Metið brottkast *Estimated discard*	Afli *Catch*
1951	15 800	-	20 200
1952	10 500	-	12 300
1953	17 600	-	20 400
1954	11 000	-	21 100
1955	20 500	-	21 400
1956	20 400	-	40 500
1957	22 800	-	82 500
1958	33 500	-	83 700
1959	35 000	-	149 900
1960	28 500	-	117 800
1961	74 000	-	211 500
1962	92 900	-	274 200
1963	130 300	-	104 300
1964	86 500	-	101 500
1965	122 900	-	68 900
1966	58 400	-	25 000
1967	67 700	-	15 300
1968	16 800	-	4 300
1969	19 400	-	3 600
1970	15 900	-	400
1971	11 500	-	200
1972	310	-	-
1973	254	-	-
1974	1 274	-	-
1975	13 280	-	-
1976	17 168	-	-
1977	28 925	-	-
1978	37 333	-	-
1979	45 072	-	-
1980	53 268	-	-
1981	39 544	-	-
1982	56 528	-	-
1983	58 867	-	-
1984	50 304	-	-
1985	49 368	-	-
1986	65 500	-	-
1987	75 439	-	-
1988	92 828	-	-
1989	97 270	3 730	-
1990/1991[1)]	101 632	3 465	-
1991/1992	98 538	10 951	-
1992/1993	106 653	1 851	-
1993/1994	101 496	1 245	-
1994/1995	131 994	2 009	-
1995/1996	124 963	888	-
1996/1997	95 882	-	-
1997/1998	64 931	-	-
1998/1999	87 238	-	-
1999/2000	92 896	-	-
2000/2001	100 332	-	-
2001/2002	95 278	-	-
2002/2003	93 601	-	-
2003/2004	125 719	-	-
2004/2005	114 237	-	-
2005/2006	103 043	-	-
2006/2007	135 303	-	-
2007/2008	158 917	-	-
2008/2009	151 780	-	-
2009/2010[2)]	46 332	-	-
2010/2011[2)]	43 533	-	-
2011/2012[2)]	49 446	-	-
2012/2013[2)]	72 011	-	-

[1)] Frá 1990/1991 fiskiveiðiárið september–ágúst. *From 1990/1991 quota year September–August.*

[2)] Meðafli við makrílveiðar í júní–ágúst fyrra fiskveiðárs meðtalinn.
Bycatch in the mackerel fishery in June–August in previous fishing season included.

TAFLA 3.21.2

Sumargotssíld. Skipting aflans í fjölda eftir aldri (í milljónum) á vertíðunum 1987/88–2012/2013.

Summer-spawning herring. *Landings in numbers by age (millions) in the fishing seasons 1987/88–2012/2013.*

Ár	Aldur *Age*													
Year	2	3	4	5	6	7	8	9	10	11	12	13	14	15+
1987/88	0.029	3.144	44.590	60.285	20.622	19.751	46.240	15.232	13.963	10.179	13.216	6.224	4.723	2.280
1988/89	0.879	4.757	41.331	99.366	69.331	22.955	20.131	32.201	12.349	10.250	7.378	7.284	4.807	1.957
1989/90	3.974	22.628	26.649	77.824	188.654	43.114	8.116	5.897	7.292	4.780	3.449	1.410	0.844	0.348
1990/91	12.567	14.884	56.995	35.593	79.757	157.225	30.248	8.187	4.372	3.379	1.786	0.715	0.446	0.565
1991/92	37.085	88.683	49.081	86.292	34.793	55.228	110.132	10.079	4.155	2.735	2.003	0.519	0.339	0.416
1992/93	16.144	94.86	122.626	38.381	58.605	27.921	38.420	53.114	11.592	1.727	1.757	0.153	0.376	0.001
1993/94	2.467	51.153	177.780	92.680	20.791	28.560	13.313	19.617	15.266	4.254	0.797	0.254	0.001	0.001
1994/95	5.738	134.616	113.290	142.876	87.207	24.913	20.303	16.301	15.695	14.680	2.936	1.435	0.244	0.195
1995/96	4.555	20.991	137.232	86.864	109.140	76.780	21.361	15.225	8.541	9.617	7.034	2.291	0.621	0.235
1996/97	0.717	15.969	40.311	86.187	68.927	84.660	39.664	14.746	8.419	5.836	3.152	5.180	1.996	0.574
1997/98	2.008	39.240	30.141	26.307	36.738	33.705	31.022	22.277	8.531	3.383	1.141	10.296	0.947	2.524
1998/99	23.655	45.390	175.529	22.691	8.613	40.898	25.944	32.046	14.647	2.122	2.754	2.150	1.070	1.011
1999/00	5.306	56.315	54.779	140.913	16.093	13.506	31.467	19.845	22.031	12.609	2.673	2.746	1.416	2.514
2000/01	17.286	57.282	136.278	49.289	76.614	11.546	8.294	16.367	9.874	11.332	6.744	2.975	1.539	1.104
2001/02	27.486	42.304	86.422	93.597	30.336	54.491	10.375	8.762	12.244	9.907	8.259	6.088	1.491	1.259
2002/03	11.698	80.863	70.801	45.607	54.202	21.211	42.199	9.888	4.707	6.520	9.108	9.355	3.994	5.697
2003/04	24.477	211.495	286.017	58.120	27.979	25.592	14.203	10.944	2.230	3.424	4.225	2.562	1.575	1.370
2004/05	23.144	63.355	139.543	182.45	40.489	13.727	9.342	5.769	7.021	3.136	1.861	3.871	0.994	1.855
2005/06	6.088	26.091	42.116	117.910	133.437	27.565	12.074	9.203	5.172	5.116	1.045	1.706	2.110	0.757
2006/07	52.567	118.526	217.672	54.800	48.312	57.241	13.603	5.994	4.299	0.898	1.626	1.213	0.849	0.933
2007/08	10.817	94.250	83.631	163.294	61.207	87.541	92.126	23.238	11.728	7.319	2.593	4.961	2.302	1.420
2008/09	10.427	38.830	90.932	79.745	107.644	59.656	62.194	54.345	18.130	8.240	5.157	2.680	2.630	1.178
2009/10	5.431	21.856	35.221	31.914	18.826	22.725	10.425	9.213	9.549	2.238	1.033	0.768	0.406	0.298
2010/11	1.476	8.843	22.674	29.492	24.293	14.419	17.407	10.045	7.576	8.896	1.764	1.105	0.672	0.555
2011/12	0.521	9.357	24.621	20.046	22.869	23.706	13.749	16.967	10.039	7.623	7.745	1.441	0.618	0.785
2012/13	0.403	10.927	52.832	30.157	25.279	29.724	23.946	19.453	15.115	13.646	8.373	7.323	1.373	0.127

TAFLA 3.21.3

Sumargotssíld. Meðalþyngd eftir aldri (g) á vertíðunum 1987/88–2012/2013.

Summer-spawning herring. *Mean weight at age (g) in the fishing seasons 1987/88–2012/2013.*

Ár	Aldur *Age*													
Year	2	3	4	5	6	7	8	9	10	11	12	13	14	15+
1987/88	60	168	200	240	278	304	325	339	356	378	400	404	424	430
1988/89	75	157	221	239	271	298	319	334	354	352	371	390	408	437
1989/90	63	130	206	246	261	290	331	338	352	369	389	380	434	409
1990/91	80	127	197	245	272	285	305	324	336	362	370	382	375	378
1991/92	74	135	188	232	267	289	304	323	340	352	369	402	406	388
1992/93	68	148	190	235	273	312	329	339	355	382	405	377	398	398
1993/94	66	145	211	246	292	324	350	362	376	386	419	389	389	389
1994/95	66	134	201	247	272	303	333	366	378	389	390	412	418	383
1995/96	68	130	183	240	277	298	325	358	378	397	409	431	430	467
1996/97	75	139	168	212	258	289	308	325	353	353	377	404	395	410
1997/98	63	131	191	233	269	300	324	341	355	362	367	393	398	411
1998/99	52	134	185	238	264	288	324	340	348	375	406	391	426	456
1999/00	74	137	204	233	268	294	311	339	353	362	378	385	411	422
2000/01	62	159	217	268	289	325	342	363	378	393	407	425	436	430
2001/02	74	139	214	244	286	296	324	347	354	385	403	421	421	433
2002/03	85	161	211	258	280	319	332	354	405	396	416	433	463	460
2003/04	72	156	189	229	260	283	309	336	336	369	394	378	412	423
2004/05	84	149	213	248	280	315	331	349	355	379	388	412	419	425
2005/06	106	170	224	262	275	298	324	335	335	356	372	394	405	413
2006/07	107	189	234	263	290	304	339	349	369	416	402	413	413	467
2007/08	93	158	221	245	261	277	287	311	339	334	346	356	384	390
2008/09	105	174	232	275	292	307	315	327	345	366	377	372	403	434
2009/10	113	190	237	274	304	318	326	335	342	360	372	394	409	421
2010/11	87	204	243	271	297	315	329	335	341	351	367	366	405	416
2011/12	97	187	245	283	309	328	343	352	356	364	375	386	378	432
2012/13	65	206	244	282	301	320	333	344	350	359	364	367	373	391

TAFLA 3.21.4

Sumargotssíld. Hlutfall kynþroska og náttúrulegur dánarstuðull eftir aldri fyrir árin 1987–2012.
Summer-spawning herring. *Proportion mature and natural mortality by age for the years 1987–2012.*

	Aldur *Age*											
	2	3	4	5	6	7	8	9	10	11	12	13+
Hlutfall kynþroska *Proportion mature*	0	0.20	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Náttúrulegur dauði *Natural mortality 1987–2008; 2011–2012*	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Náttúrulegur dauði *Natural mortality 2009*	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Náttúrulegur dauði *Natural mortality 2010*	0.74	0.74	0.74	0.69	0.63	0.60	0.58	0.57	0.56	0.54	0.53	0.54

TAFLA 3.21.5

Sumargotssíld. Stofnstærð í fjölda eftir aldri (í milljónum) og stærð hrygningarstofns í upphafi árs (í þús. tonna) árin 1987–2013 og vegin meðalveiðidánartala fyrir 5–10 ára á árunum 1987–2012.
Summer-spawning herring. *Stock abundance in numbers at age (millions) and spawning stock biomass in the beginning of the year (thous. tonnes) 1987–2013 and weighted mean fishing mortality of ages 5–10 in the years 1987–2013.*

Ár	Aldur *Age*											Hrygningarstofn	Veiðidánartala
Year	3	4	5	6	7	8	9	10	11	12	13+	*SSB*	*Fishing mortality*
1987	530	989	301	85	69	107	43	38	26	34	34	384	0.35
1988	271	476	853	215	57	44	53	24	21	14	37	423	0.27
1989	448	241	392	677	129	30	21	18	10	9	26	386	0.32
1990	301	383	193	281	434	76	19	13	9	5	26	350	0.40
1991	841	258	293	140	178	244	40	10	8	5	25	310	0.44
1992	1034	677	187	183	94	109	116	26	5	4	24	343	0.41
1993	637	846	496	133	110	59	62	55	13	3	24	424	0.25
1994	693	528	597	361	100	73	40	38	35	8	23	441	0.31
1995	204	499	370	404	244	67	46	21	19	18	23	407	0.34
1996	182	164	322	252	262	148	41	28	11	8	28	309	0.36
1997	776	150	110	209	163	157	96	23	17	4	22	270	0.25
1998	323	665	107	75	155	115	113	66	13	12	10	300	0.28
1999	559	249	435	75	60	101	80	72	46	9	14	292	0.37
2000	399	452	173	260	53	41	62	53	44	30	12	310	0.33
2001	486	307	280	110	163	37	29	40	39	29	26	277	0.41
2002	1523	399	196	165	71	96	23	18	25	26	33	307	0.40
2003	1134	1301	294	134	98	44	47	12	12	16	27	408	0.27
2004	690	825	906	211	95	64	26	32	9	8	30	517	0.23
2005	1203	564	614	646	152	72	49	18	22	5	26	569	0.23
2006	778	1064	470	444	458	112	54	36	12	15	22	688	0.13
2007	879	591	756	373	356	360	88	43	28	10	30	655	0.27
2008	748	707	457	532	277	237	237	58	28	19	25	695	0.25
2009	699	640	553	338	379	194	155	163	35	18	29	573	0.08
2010	588	411	365	314	192	215	111	88	93	20	26	400	0.11
2011	823	275	181	163	150	95	107	55	45	47	24	354	0.16
2012	860	735	225	145	125	113	73	81	41	33	54	450	0.22
2013[1)]	606	768	615	175	107	85	80	48	59	24	63	541	

[1)] Ekki tekið tillit til síldardauðans í Kolgrafafirði veturinn 2012/2013.
The mass mortality in Kolgrafafjörður in the winter 2012/2013 has not been accounted for.

TAFLA 3.21.6

Norsk-íslensk vorgotssíld. Afli Íslendinga og annara þjóða (í tonnum) frá 1950 –2012.
Norwegian spring-spawning herring. *Icelandic landings (tonnes) and total catch of other nations since 1950.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*
1950	30 700	902 300	933 000
1951	48 900	1 228 900	1 277 800
1952	9 200	1 245 600	1 254 800
1953	31 500	1 042 900	1 074 400
1954	15 200	1 629 300	1 644 500
1955	18 100	1 341 700	1 359 800
1956	41 200	1 618 200	1 659 400
1957	18 200	1 300 300	1 318 500
1958	22 600	963 700	986 300
1959	34 500	1 076 600	1 111 100
1960	26 700	1 075 100	1 101 800
1961	85 000	745 100	830 100
1962	176 200	672 400	848 600
1963	177 500	807 000	984 500
1964	367 400	914 400	1281 800
1965	540 000	1 007 700	1 547 700
1966	691 400	1 263 600	1 955 000
1967	359 300	1 317 900	1 677 200
1968	75 200	637 000	712 200
1969	600	67 200	67 800
1970	-	62 300	62 300
1971	-	21 100	21 100
1972	-	13 161	13 161
1973	-	7 017	7 017
1974	-	7 619	7 619
1975	-	13 713	13 713
1976	-	10 436	10 436
1977	-	22 706	22 706
1978	-	19 824	19 824
1979	-	12 864	12 864
1980	-	18 577	18 577
1981	-	13 736	13 736
1982	-	16 655	16 655
1983	-	23 054	23 054
1984	-	53 532	53 532
1985	-	169 872	169 872
1986	-	225 256	225 256
1987	-	127 306	127 306
1988	-	135 301	135 301
1989	-	103 830	103 830
1990	-	86 411	86 411
1991	-	84 683	84 683
1992	-	104 448	104 448
1993	-	232 457	232 457
1994	21 146	458 082	479 228
1995	174 109	731 392	905 501
1996	164 957	1 055 326	1 220 283
1997	220 040	1 206 467	1 426 507
1998	197 789	1 025 342	1 223 131
1999	203 381	1 032 052	1 235 433
2000	186 035	1 021 166	1 207 201
2001	77 693	688 443	766 136
2002	127 197	680 598	807 795
2003	117 910	632 167	750 077
2004	102 787	690 879	793 666
2005	156 466	846 777	1 003 243
2006	159 545	809 413	968 958
2007	173 621	1 093 372	1 266 993
2008	217 602	1 328 054	1 545 656
2009	265 480	1 421 891	1 687 371
2010	205 862	1 251 153	1 457 015
2011	152 140	840 857	992 997
2012[1)]	118 791	703 679	822 470

[1)] Bráðabirgðatölur. *Provisional figures*.

TAFLA 3.22.1
Loðna. Aflinn (þús. tonna) 1963–2013.
Capelin. *Landings (thous. tonnes) 1963–2013.*

Ár *Year*	**Vetur (jan–mar)** *Winter (Jan–Mar)*					**Sumar og haust (jún–des)** *Summer and autumn (Jun–Dec)*						Samtals *Total*
	Ísland *Iceland*	Noregur *Norway*	Færeyjar *Faeroes*	Græn-land *Green-land*	Samtals vertíð *Season total*	Ísland *Iceland*	Noregur *Norway*	Færeyjar *Faeroes*	Græn-land *Green-land*	ESB *EU*	Samtals vertíð *Season total*	
1963	1	-	-	-	1	-	-	-	-	-	-	1
1964	9	-	-	-	9	-	-	-	-	-	-	9
1965	50	-	-	-	50	-	-	-	-	-	-	50
1966	125	-	-	-	125	-	-	-	-	-	-	125
1967	97	-	-	-	97	-	-	-	-	-	-	97
1968	78	-	-	-	78	-	-	-	-	-	-	78
1969	171	-	-	-	171	-	-	-	-	-	-	171
1970	191	-	-	-	191	-	-	-	-	-	-	191
1971	183	-	-	-	183	-	-	-	-	-	-	183
1972	277	-	-	-	277	-	-	-	-	-	-	277
1973	441	-	-	-	441	-	-	-	-	-	-	441
1974	462	-	-	-	462	-	-	-	-	-	-	462
1975	457	-	-	-	457	3	-	-	-	-	3	460
1976	339	-	-	-	339	114	-	-	-	-	114	453
1977	549	-	24	-	573	260	-	-	-	-	260	833
1978	469	-	36	-	505	498	154	3	-	-	655	1 160
1979	522	-	18	-	540	442	124	22	-	-	588	1 128
1980	392	-	-	-	392	368	119	24	-	17	528	920
1981	156	-	-	-	156	485	91	16	-	21	613	769
1982	13	-	-	-	13	-	-	-	-	-	-	13
1983	-	-	-	-	-	133	-	-	-	-	133	133
1984	440	-	-	-	440	425	105	10	-	8	548	988
1985	348	-	-	-	348	645	193	66	-	16	920	1 268
1986	342	50	-	-	392	553	150	65	-	5	773	1 165
1987	501	60	-	-	561	311	82	65	-	-	458	1 019
1988	601	57	-	-	658	311	12	48	-	-	371	1 029
1989	609	56	-	-	665	54	53	14	-	-	121	786
1990	612	62	12	-	686	84	22	6	-	-	111	798
1991	202	-	-	-	202	56	-	-	-	-	56	258
1992	573	48	-	-	621	213	65	19	1	-	298	919
1993	489	-	-	1	490	450	127	24	10	-	611	1 101
1994	550	15	-	2	567	211	99	12	2	-	324	891
1995	539	-	-	1	540	176	28	-	2	-	206	746
1996	708	-	10	6	724	474	206	32	15	61	773	1 497
1997	775	-	16	6	797	536	154	27	6	47	764	1 561
1998	457	-	15	10	482	291	73	27	8	42	441	923
1999	608	15	14	22	659	83	11	6	2	-	102	761
2000	761	15	32	22	830	127	80	30	7	21	265	1 095
2001	767	-	10	29	806	150	106	12	9	17	294	1 061
2002	901	-	28	26	955	180	119	-	13	28	340	1 295
2003	585	-	40	23	648	96	78	4	3	18	199	847
2004	479	16	31	17	543	46	34	-	12		92	635
2005	594	69	19	10	692	9	-	-	-	-	9	701
2006	193	8	30	7	238	-	-	-	-	-	-	238
2007	307	38	19	13	377	-	-	-	-	-	-	377
2008	149	38	10	6	203	-	-	-	-	-	-	203
2009	15	-	-	-	15	-	-	-	-	-	-	15
2010	111	28	8	5	151	5	-	-	-	-	5	5
2011	322	31	20	13	386	8	59	-	5	-	72	457
2012	577	46	30	22	675	9	-	-	1	-	10	685
2013[1)]	454	40	30	17	541							

[1)] Bráðabirgðatölur. *Provitional figures.*

TAFLA 3.22.2

Loðna. Skipting aflans í fjölda eftir aldri (í milljörðum) og heildaraflinn í fjölda og þyngd (þús. tonna) um sumar og haust (jún–des) á árunum 1978–2012.

Capelin. *Landings in numbers by age (billions) and nominal landings by number and weight (thous. tonnes) in summer and autumn (Jun–Dec) 1978–2012.*

Ár	Aldur *Age*				Samtals fjöldi	Samtals þyngd
Year	1	2	3	4	*Total number*	*Total weight*
1978	-	21.4	12.2	-	33.6	655.0
1979	0.6	29.4	6.1	-	36.1	588.0
1980	4.9	17.2	5.4	-	27.5	527.6
1981	0.6	27.9	2.0	-	30.5	613.0
1982	-	-	-	-	0.0	0.0
1983	0.6	7.2	0.8	-	8.6	133.4
1984	0.5	9.8	7.8	0.1	18.2	548.5
1985	0.8	25.6	15.4	0.2	42.0	919.7
1986	-	10.0	23.3	0.5	33.8	772.9
1987	-	27.7	6.7	-	34.4	458.6
1988	0.3	13.6	5.4	-	19.3	371.4
1989	1.7	6.0	1.5	-	9.2	121.0
1990	0.8	5.9	1.0	-	7.7	111.2
1991	0.3	2.7	0.4	-	3.4	56.0
1992	1.7	14	2.1	-	17.8	298.1
1993	0.2	24.9	5.4	0.2	30.7	611.6
1994	0.6	15.0	2.8	-	18.4	324.1
1995	1.5	9.7	1.1	-	12.3	205.7
1996	0.2	25.2	12.7	0.2	38.3	773.8
1997	1.8	33.4	10.2	0.4	45.8	763.7
1998	0.9	25.1	2.9	-	28.9	440.5
1999	0.3	4.7	0.7	-	5.7	102.4
2000	0.2	12.9	3.3	0.1	16.5	265.1
2001	-	17.6	1.2	-	18.8	294.0
2002	-	18.3	2.5	-	20.8	339.7
2003	0.3	11.8	1.0	-	13.1	198.5
2004	-	5.3	0.5	-	5.8	92.0
2005	-	0.4	-	-	0.4	9.0
2006	-	-	-	-	0.0	0.0
2007	-	-	-	-	0.0	0.0
2008	-	-	-	-	0.0	0.0
2009	-	-	-	-	0.0	0.0
2010	+	0.2	+	-	0.3	5.4
2011	-	2.5	1.6	-	4.1	72.1
2012	+	0.2	0.2	-	0.4	10.4

TAFLA 3.22.3

Loðna. Skipting aflans í fjölda eftir aldri (í milljörðum) og heildaraflinn í fjölda og þyngd (þús. tonna) jan–mar á árunum 1979–2013.

Capelin. *Landings in numbers by age (billions) and nominal landings by number and weight (thous. tonnes) in winter (Jan–Mar) 1979–2013.*

Ár	Aldur *Age*				Samtals fjöldi	Samtals þyngd
Year	2	3	4	5	*Total number*	*Total weight*
1979	1.0	20.8	4.8	0.1	26.7	539.9
1980	1.3	17.6	3.5	-	22.4	392.1
1981	1.7	7.1	1.9	-	10.7	156.0
1982	-	0.8	0.1	-	0.9	13.2
1983	-	-	-	-	0.0	0.0
1984	2.1	18.1	3.4	-	23.6	439.6
1985	0.4	9.1	5.4	-	14.9	348.5
1986	0.1	9.8	6.9	0.2	17.0	391.8
1987	-	6.9	15.5	-	22.4	560.5
1988	-	23.4	7.2	0.3	30.9	657.2
1989	0.1	22.9	7.8	-	30.8	665.1
1990	1.4	24.8	9.6	0.1	35.9	686.8
1991	0.5	7.4	1.5	-	9.4	202.4
1992	2.7	29.4	2.8	-	34.9	621.1
1993	0.2	20.1	2.5	-	22.8	489.6
1994	0.6	22.7	3.9	-	27.2	567.1
1995	1.3	17.6	5.9	-	24.8	539.8
1996	0.6	27.4	7.7	-	35.7	723.6
1997	0.9	29.1	11.0	-	41.0	797.1
1998	0.3	20.4	5.4	-	26.1	481.3
1999	0.5	31.2	7.5	-	39.2	658.9
2000	0.3	36.3	5.4	-	42.0	830.3
2001	0.4	27.9	6.7	-	35.0	806.2
2002	0.1	33.1	4.2	-	37.4	955.0
2003	0.1	32.2	1.9	-	34.2	648.0
2004	0.6	24.6	3.0	-	28.2	542.9
2005	0.1	31.5	3.1	-	34.7	692.1
2006	0.1	10.4	0.3	-	10.8	238.0
2007	0.3	19.5	0.5	-	20.3	376.8
2008	0.5	10.6	0.4	-	11.5	202.4
2009	0.1	0.6	0.1	-	0.8	15.1
2010	0.7	5.3	0.9	+	6.9	150.7
2011	0.1	16.2	0.6	-	17.0	385.2
2012	0.6	25.0	6.1	+	31.8	674.4
2013	0.3	12.1	9.7	0.2	22.3	541.0

TAFLA 3.22.4

Loðna. Meðalþyngd (g) kynþroska loðnu að hausti af árgöngum 1978–2010.

Capelin. *Mean weight (g) in autumn of mature capelin of the 1978–2010 year classes.*

Árgangur *Year class*	2 ára *Age 2*	3 ára *Age 3*
1978	-	24.0
1979	19.2	24.1
1980	16.5	22.5
1981	16.1	25.7
1982	15.8	23.8
1983	15.5	24.1
1984	18.1	25.8
1985	17.9	23.4
1986	15.5	25.5
1987	18.0	25.5
1988	18.1	25.4
1989	16.3	22.6
1990	16.5	23.3
1991	16.2	23.6
1992	16.0	20.5
1993	15.3	20.6
1994	15.8	20.3
1995	14.3	18.8
1996	14.1	20.6
1997	16.8	24.7
1998	17.1	23.9
1999	16.3	22.0
2000	15.9	24.0
2001	16.9	21.6
2002	16.1	24.2
2003	21.3	19.4
2004	15.9	-
2005	15.1	22.4
2006	18.6	23.8
2007	20.0	24.0
2008	19.0	24.4
2009	18.7	28.0
2010	22.0	-
Meðaltal *Average*	17.0	23.3

TAFLA 3.22.5

Loðna. Stofnstærð í fjölda eftir aldri og kynþroska (í milljörðum) miðað við 1. janúar 1979–2013. Taflan sýnir einnig þyngd kynþroska og ókynþroska loðnu (þús. tonna) og stærð hrygningarstofns í lok vertíðar.

Capelin. *Stock abundance in numbers by age and maturity groups (billions) on 1 January 1979–2013. Also shown is biomass (thous. tonnes) of the immature and maturing stock components and the spawning stock size at the end of the fishing season.*

Ár *Year*	Fjöldi ókynþroska *Number immature*			Fjöldi kynþroska *Number mature*				Samtals þyngd *Total weight*		Hrygningarstofn *Spawning stock*	
	Aldur 2 *Age 2*	Aldur 3 *Age 3*	Alls *Total*	Aldur 3 *Age 3*	Aldur 4 *Age 4*	Aldur 5 *Age 5*	Alls *Total*	Ókynþroska *Immature*	Kynþroska *mature*	Fjöldi *Number*	Þyngd *Weight*
1979	137.6	12.8	150.4	51.8	14.8	0.3	66.9	1028	1358	29.0	600
1980	50.6	13.8	64.4	53.4	3.6	0.2	57.2	502	980	17.5	300
1981	55.3	3.5	58.8	16.3	4.9	-	21.2	527	471	7.7	170
1982	41.2	3.0	44.2	8.0	0.5	-	8.5	292	171	6.8	140
1983	123.7	12.6	136.3	14.3	2.0	-	16.3	685	315	13.5	260
1984	105.0	35.7	140.7	39.8	7.6	0.1	47.5	984	966	21.6	440
1985	211.6	34.3	245.9	25.2	15.6	0.3	41.1	1467	913	20.7	460
1986	83.2	83.9	167.1	34.5	10.5	0.2	45.2	1414	1059	19.6	460
1987	131.9	25.6	157.5	22.1	37.0	0.2	59.1	1003	1355	18.3	420
1988	120.5	31.2	151.3	34.1	11.7	-	45.8	1083	993	18.5	400
1989	67.8	20.1	87.9	48.8	16.0	0.3	64.8	434	1298	22.0	440
1990	53.9	8.6	62.5	31.2	12.1	-	43.3	291	904	5.5	115
1991	98.9	8.6	107.5	22.3	4.5	-	26.8	501	544	16.3	330
1992	111.6	8.1	119.7	54.8	5.3	-	60.1	487	1106	25.8	475
1993	124.6	13.9	138.5	46.5	3.5	-	50.0	622	1017	23.6	499
1994	121.3	16.9	138.2	50.5	4.6	-	55.1	573	1063	24.8	460
1995	188.1	29.5	217.6	35.1	8.7	-	43.8	696	914	19.2	420
1996	165.2	37.9	203.1	75.5	20.1	-	95.6	800	1820	42.8	830
1997	160.0	24.1	184.1	72.4	24.8	-	97.2	672	1881	21.8	430
1998	138.8	29.5	168.3	50.1	7.9	-	58.0	621	1106	27.6	492
1999	140.9	16.1	157.0	53.2	16.0	-	69.3	585	1171	29.5	500
2000	115.8	20.5	136.3	68.2	10.0	-	78.2	535	1485	34.2	650
2001	122.2	21.0	161.2	46.3	10.5	-	56.8	655	1197	21.3	450
2002	117.3	7.6	126.6	59.3	10.5	-	69.8	510	1445	22.9	475
2003	109.4	9.4	105.1	58.4	2.9	-	61.3	487	1214	20.7	410
2004	134.6	11.4	143.5	54.2	6.2	-	60.4	597	1204	28.2	535
2005	48.6	2.9	51.5	86.6	7.5	-	72.5	570	1450	36.3	602
2006	81.7	2.1	83.8	29.4	1.9	-	31.3	761	639	18.8	400
2007	55.8	1.1	56.9	52.5	1.4	-	53.9	515	997	19.1	410
2008	32.4	4.0	36.4	32.5	0.7	-	33.2	339	619	22.2	406
2009	37.3	6.4	43.7	14.5	2.6	+	17.1	413	343	17.3	328
2010	77.0	2.9	79.9	21.5	4.2	+	25.7	728	548	21.5	410
2011	117.7	13.6	131.3	36.2	1.9	-	38.1	1235	765	22.3	411
2012	37.4[1)]	28.8	66.2[1)]	46.4	7.9	-	54.4	596[1)]	1112	20.7	418
2013	17.2[1)]	1.9[1)]	19.1[1)]	22.0	18.8	0.4	41.2	145[1)]	983	17.9	417

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.22.6

Loðna. Mældur fjöldi (í milljörðum) ókynþroska 1 og 2 ára loðnu í haustleiðöngrum (okt–des).

Capelin. *Abundance (numbers in billions) of immature ages 1 and 2 from acoustic autumn surveys (Oct–Dec).*

Ár *Year*	Aldur 1 *Age 1 - Acoustics*	Aldur 2 *Age 2 - Acoustics*
1980	23.5	-
1981	21.0	1.1
1982	68.0	1.7
1983	44.1	8.2
1984	73.8	4.6
1985	33.8	12.6
1986	58.6	1.4
1987	21.3	2.5
1988	43.9	6.7
1989	29.2	1.8
1990	24.9	1.3
1991	60.0	5.3
1992	104.6	2.3
1993	100.4	9.8
1994	119	6.9
1995	165	30.1
1996	111.9	16.4
1997	66.8	30.8
1998	121	5.9
1999	89.8	4.4
2000	103.7	10.9
2001	101.8	2.4
2002	1.0	0.5
2003	4.9	3.1
2004	7.9	0.1
2005	-	-
2006	44.7	0.3
2007	5.7	0.1
2008	7.5	0.4
2009	13.0	-
2010	91.6	6.3
2011	9.0	0.6
2012	18.5	2.0

TAFLA 3.23.1
Kolmunni. Afli Íslendinga og annarra þjóða (í tonnum) í Norðaustur-Atlantshafi 1970–2012.
Blue whiting. *Icelandic landings (tonnes) and total catch of other nations in the Northeast Atlantic during the years 1970–2012.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*
1970	-	37 949	37 949
1971	-	75 599	75 599
1972	634	76 861	77 495
1973	3 212	99 804	103 016
1974	4 349	103 164	107 513
1975	1 297	110 748	112 045
1976	8 789	155 188	163 977
1977	15 778	252 958	268 736
1978	34 777	573 933	608 710
1979	19 096	1 099 502	1 118 898
1980	9 934	1 112 630	1 122 564
1981	15 021	907 959	922 980
1982	1 689	548 954	550 643
1983	7 077	546 267	553 344
1984	105	615 464	615 569
1985	-	678 214	678 214
1986	-	847 145	847 145
1987	-	654 718	654 718
1988	-	552 264	552 264
1989	4 977	625 339	630 316
1990	-	558 128	558 128
1991	-	364 008	364 008
1992	-	474 592	475 026
1993	-	475 198	480 679
1994	-	457 696	459 414
1995	369	578 536	578 905
1996	302	645 680	645 982
1997	10 464	661 973	672 437
1998	64 863	1 064 106	1 128 967
1999	160 530	1 095 693	1 256 228
2000	260 183	1 152 744	1 412 927
2001	365 101	1 415 069	1 780 170
2002	286 381	1 270 411	1 556 792
2003	501 505	1 817 430	2 318 935
2004	422 074	1 955 494	2 377 568
2005	265 890	1 761 063	2 026 953
2006	314 755	1 653 701	1 968 456
2007	234 952	1 377 378	1 612 330
2008	163 748	1 082 717	1 246 465
2009	120 197	515 442	635 639
2010	87 121	436 711	523 832
2011	5 175	97 417	103 592
2012[1)]	63 056	327 944	391 000

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.24.1

Makríll. Afli Íslendinga og annarra þjóða (í tonnum) í Norðaustur-Atlantshafi 1987–2012.

Mackerel. *Icelandic landings (tonnes) and total catch of other nations in the Northeast Atlantic during the years 1987–2012.*

Ár Year	Ísland Iceland	Aðrar þjóðir Other nations	Samtals Total
1987	-	654 805	654 805
1988	-	680 492	680 492
1989	-	584 532	589 509
1990	-	627 511	627 511
1991	-	667 883	667 883
1992	-	760 351	760 351
1993	-	825 036	825 036
1994	-	821 395	821 395
1995	-	755 431	755 800
1996	1	563 519	563 611
1997	931	568 682	569 613
1998	288	666 376	666 664
1999	144	640 167	640 311
2000	1	738 608	738 608
2001	1	737 461	737 462
2002	53	772 852	772 905
2003	122	669 478	669 600
2004	1	650 221	650 221
2005	363	543 123	543 486
2006	4 222	468 430	472 652
2007	36 518	542 861	579 379
2008	112 837	498 226	611 063
2009	116 101	618 788	734 889
2010	122 031	747 420	869 451
2011	158 635	780 184	938 819
2012[1)]	149 282	780 718	930 000

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.26.1

Gulllax. Afli (í tonnum) á Íslandsmiðum 1985–2012.

Greater silver smelt. *Landings (in tonnes) from Icelandic waters 1985–2012.*

Ár *Year*	Ísland *Iceland*
1985	5
1986	53
1987	42
1988	206
1989	8
1990	112
1991	246
1992	657
1993	1 255
1994	613
1995	492
1996	808
1997	3 367
1998	13 387
1999	5 495
2000	4 593
2001	2 478
2002	4 357
2003	2 686
2004	3 637
2005	4 481
2006	4 775
2007	4 226
2008	8 778
2009	10 829
2010	16 428
2011	10 155
2012[1)]	9 290

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.27.1

Humar. Afli (í tonnum) á Íslandsmiðum árin 1951–2012.

Nephrops. *Landings (in tonnes) from Icelandic waters 1951–2012.*

Ár *Year*	Ísland *Iceland*	Aðrar þjóðir *Other nations*	Samtals *Total*
1951	-	26	26
1952	-	53	53
1953	-	144	144
1954	-	236	236
1955	-	203	203
1956	-	138	138
1957	-	312	312
1958	728	593	1 321
1959	1 404	602	2 006
1960	2 081	451	2 532
1961	1 490	322	1 812
1962	2 662	154	2 816
1963	5 550	512	6 062
1964	3 487	586	4 073
1965	3 706	409	4 115
1966	3 465	546	4 011
1967	2 731	208	2 939
1968	2 489	157	2 646
1969	3 512	189	3 701
1970	4 026	119	4 145
1971	4 657	155	4 812
1972	4 321	260	4 581
1973	2 791	5	2 796
1974	1 983	6	1 989
1975	2 357	-	2 357
1976	2 780	-	2 780
1977	2 723	-	2 723
1978	2 059	-	2 059
1979	1 440	-	1 440
1980	2 398	-	2 398
1981	2 520	-	2 520
1982	2 603	-	2 603
1983	2 672	-	2 672
1984	2 459	-	2 459
1985	2 385	-	2 385
1986	2 564	-	2 564
1987	2 712	-	2 712
1988	2 240	-	2 240
1989	1 866	-	1 866
1990	1 692	-	1 692
1991	2 157	-	2 157
1992	2 230	-	2 230
1993	2 381	-	2 381
1994	2 238	-	2 238
1995	1 027	-	1 027
1996	1 633	-	1 633
1997	1 228	-	1 228
1998	1 411	-	1 411
1999	1 376	-	1 376
2000	1 239	-	1 239
2001	1 420	-	1 420
2002	1 548	-	1 548
2003	1 666	-	1 666
2004	1 437	-	1 437
2005	2 030	-	2 030
2006	1 875	-	1 875
2007	2 006	-	2 006
2008	2 070	-	2 070
2009	2 464	-	2 464
2010	2 540	-	2 540
2011	2 240	-	2 240
2012[1)]	1 914	-	1 914

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.27.2

Humar. Afli og afli á togtíma eftir svæðum árin 1970–2012.

Nephrops. *Landings and catch per hour by area and total during 1970–2012.*

Ár *Year*	**SV-mið** Jökuldjúp–Selvogsleir		**Vestmannaeyjamið** Selvogsbanki–Háfadjúp		**SA-mið** Skaftárdjúp–Lónsdjúp		**Alls** *Total*	
	Tonn *Tonnes*	kg/klst *kg/hour*	Tonn *Tonnes*	kg/klst *kg/hour*	Tonn *Tonnes*	kg/klst *kg/hour*	Tonn *Tonnes*	kg/klst *kg/hour*
1970	1 517	35.9	916	34.7	1 593	51.1	4 026	40.2
1971	1 393	46.9	1 446	43.0	1 818	55.5	4 657	48.4
1972	1 500	36.8	1 370	35.9	1 451	40.8	4 321	37.7
1973	1 130	30.9	535	31.7	1 126	31.9	2 791	31.3
1974	408	32.0	492	32.2	1 083	48.5	1 983	39.4
1975	527	33.6	717	35.6	1 113	43.9	2 357	38.5
1976	817	32.4	608	31.5	1 355	42.1	2 780	36.2
1977	571	27.5	663	32.8	1 489	42.5	2 723	35.7
1978	395	31.2	290	28.6	1 374	47.9	2 059	40.0
1979	700	33.9	445	32.8	295	34.2	1 440	33.6
1980	734	43.8	540	34.4	1 124	55.5	2 398	45.5
1981	398	44.0	627	44.1	1 495	58.8	2 520	51.8
1982	640	44.0	509	42.8	1 454	60.2	2 603	51.5
1983	572	42.5	710	45.8	1 390	51.6	2 672	47.8
1984	422	36.1	722	47.9	1 315	48.5	2 459	45.6
1985	522	46.9	583	57.1	1 280	60.8	2 385	56.4
1986	495	49.0	454	56.2	1 615	68.2	2 564	61.3
1987	615	43.5	599	57.4	1 498	55.6	2 712	52.6
1988	625	39.3	965	42.7	650	36.8	2 240	39.9
1989	394	32.8	645	35.7	827	38.0	1 866	36.0
1990	217	29.3	304	29.0	1 171	48.1	1 692	40.0
1991	374	35.0	361	29.0	1 422	51.0	2 157	42.1
1992	400	40.8	414	40.0	1 417	60.5	2 230	51.3
1993	446	42.1	435	38.3	1 500	61.6	2 381	51.4
1994	539	30.8	493	35.4	1 205	43.8	2 238	38.0
1995	510	26.0	325	28.0	192	26.0	1 027	27.0
1996	514	30.0	721	37.8	398	39.2	1 633	35.2
1997	371	25.2	533	30.5	324	46.2	1 228	31.3
1998	145	22.2	746	39.1	520	49.0	1 411	38.9
1999	131	25.5	669	38.2	576	47.9	1 376	39.7
2000	107	25.8	454	38.2	678	64.3	1 239	46.6
2001	258	26.6	296	29.2	866	73.5	1 420	44.9
2002	288	25.6	265	29.9	995	64.8	1 548	43.7
2003	133	30.5	357	32.9	1 176	69.9	1 666	52.0
2004	126	16.8	341	25.9	970	58.4	1 437	38.5
2005	218	30.6	953	48.2	860	46.9	2 030	44.9
2006	316	47.6	490	46.4	1 069	93.7	1 875	65.5
2007	1 200	93.0	53	59.1	753	111.5	2 006	97.6
2008	599	87.5	477	102.8	994	144.5	2 070	112.7
2009	1 130	70.0	472	99.8	862	86.9	2 464	80.0
2010	1 173	76.8	652	71.6	715	82.1	2 540	75.8
2011	846	65.7	474	65.9	920	89.1	2 240	71.0
2012[1)]	791	62.9	439	57.2	684	75.7	1 914	63.0

[1)] Bráðabirgðatölur. *Provisional figures*.

TAFLA 3.27.3

Humar. Skipting aflans í fjölda eftir aldri (í milljónum) á árunum 1982–2012.

Nephrops. *Landings in numbers by age (millions) in the years 1982–2012.*

Ár	Aldur *Age*													
Year	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1982	0.08	0.98	5.41	6.21	7.34	8.03	5.79	4.62	3.51	1.28	0.96	0.32	0.16	0.10
1983	0.11	0.73	4.49	6.81	6.64	6.65	4.74	5.01	3.79	1.77	1.16	0.63	0.34	0.21
1984	0.26	1.45	4.74	5.97	6.86	6.18	4.01	3.41	3.20	1.53	1.27	0.80	0.47	0.55
1985	0.05	0.89	3.70	5.22	5.78	6.59	5.15	4.02	3.26	1.33	1.00	0.57	0.33	0.22
1986	0.01	0.44	3.25	6.39	8.61	7.51	5.25	4.13	3.30	1.20	0.96	0.52	0.23	0.11
1987	0.05	0.42	2.44	5.29	7.34	8.31	5.43	4.45	3.33	1.62	1.06	0.61	0.38	0.36
1988	0.09	0.73	2.70	4.53	6.04	6.18	5.25	3.99	2.53	1.19	0.89	0.47	0.37	0.25
1989	0.07	0.75	3.37	3.81	4.59	5.06	3.52	2.99	2.59	1.22	0.82	0.53	0.34	0.23
1990	0.09	1.09	5.44	7.15	5.93	4.42	2.78	2.13	1.57	0.83	0.63	0.42	0.33	0.31
1991	0.04	0.87	4.88	7.98	9.07	6.99	3.83	2.86	1.91	0.84	0.61	0.37	0.26	0.21
1992	0.01	0.45	3.13	6.33	8.38	8.32	4.91	3.13	2.02	0.91	0.55	0.30	0.19	0.13
1993	0.05	0.35	2.49	4.65	6.35	6.94	5.16	3.90	3.11	1.41	0.90	0.52	0.31	0.27
1994	0.12	0.90	2.27	4.05	5.45	6.09	4.47	3.79	3.13	1.64	1.01	0.49	0.34	0.19
1995	0.06	0.53	1.71	2.07	2.26	2.58	1.89	1.78	1.37	0.71	0.44	0.38	0.24	0.14
1996	0.07	0.73	3.10	4.23	4.19	4.13	2.81	2.28	1.99	1.01	0.83	0.63	0.38	0.28
1997	0.03	0.51	2.48	3.57	3.59	2.88	1.81	1.58	1.46	0.80	0.64	0.47	0.29	0.27
1998	0.00	0.19	1.40	2.54	3.49	3.32	2.24	1.88	1.71	0.96	0.79	0.62	0.43	0.42
1999	0.03	0.18	1.26	2.65	3.63	4.01	2.83	2.10	1.65	0.78	0.54	0.37	0.28	0.26
2000	0.03	0.19	1.18	1.61	2.21	2.75	2.23	2.22	1.87	0.94	0.66	0.45	0.29	0.26
2001	0.02	0.22	0.87	1.55	2.35	2.85	2.23	2.35	2.14	1.23	0.90	0.63	0.40	0.38
2002	0.01	0.17	1.77	2.21	2.23	2.52	1.98	2.10	1.98	1.22	1.06	0.93	0.71	0.79
2003	0.07	0.26	1.04	3.31	3.61	3.02	2.14	1.90	1.77	1.13	1.04	0.88	0.78	0.94
2004	0.03	0.56	1.99	2.60	4.65	4.53	2.32	1.74	1.25	0.67	0.52	0.43	0.39	0.71
2005	0.03	0.22	1.76	3.45	3.94	5.16	4.61	3.54	2.65	1.38	0.77	0.56	0.45	0.41
2006	0.01	0.22	1.19	2.83	4.14	4.29	3.59	3.31	2.60	1.29	0.88	0.58	0.42	0.43
2007	0.02	0.13	0.82	1.85	2.96	3.90	2.82	2.58	2.48	1.61	1.14	0.99	0.84	1.33
2008	0.02	0.24	1.21	2.42	3.50	4.00	3.65	3.43	2.69	1.57	1.02	0.95	0.73	0.84
2009	0.04	0.26	1.29	2.38	3.36	4.28	3.72	3.43	2.96	1.82	1.21	1.22	1.16	1.81
2010	0.02	0.24	1.39	2.55	3.55	4.34	3.55	3.56	2.86	1.89	1.22	1.37	1.14	1.99
2011	0.02	0.25	1.50	2.85	3.27	4.17	3.42	3.19	2.93	1.83	1.08	0.99	0.90	1.33
2012	0.00	0.10	0.78	1.77	2.28	2.94	2.73	2.51	2.35	1.57	1.04	0.95	0.96	1.36

TAFLA 3.27.4

Humar. Stofnstærð í fjölda eftir aldri (í milljónum) og stærð veiðistofnsins í þúsundum tonna á árunum 1982–2013.
Nephrops. *Stock abundance in numbers by age (millions) and fishable stock in thousand tonnes in the years 1982–2013.*

Ár	Aldur *Age*														Veiðistofn 6+
Year	3	4	5	6	7	8	9	10	11	12	13	14	15	16	*Fishable stock*
1982	141.11	111.90	99.20	74.29	58.99	45.88	30.36	20.53	13.90	6.04	4.50	4.39	1.12	0.45	15.73
1983	132.83	115.46	90.73	76.33	55.22	41.68	30.34	19.64	12.65	8.22	3.79	2.82	3.31	0.77	15.51
1984	122.75	108.65	93.87	70.23	56.35	39.23	28.14	20.57	11.58	6.96	5.14	2.06	1.74	2.40	14.96
1985	131.26	100.27	87.65	72.57	52.12	39.95	26.56	19.43	13.77	6.61	4.32	3.06	0.98	1.00	14.53
1986	136.51	107.42	81.29	68.42	54.71	37.46	26.78	17.11	12.30	8.34	4.22	2.64	2.00	0.50	14.22
1987	147.62	111.76	87.55	63.62	50.26	37.04	23.91	17.20	10.30	7.11	5.75	2.59	1.69	1.43	13.57
1988	142.99	120.81	91.12	69.48	47.32	34.54	22.86	14.70	10.08	5.45	4.36	3.75	1.57	1.04	12.87
1989	130.55	116.99	98.25	72.17	52.80	33.30	22.71	13.99	8.45	5.98	3.39	2.77	2.64	0.95	12.84
1990	124.05	106.82	95.11	77.41	55.65	39.09	22.70	15.42	8.77	4.59	3.80	2.04	1.80	1.85	13.46
1991	113.85	101.49	86.47	72.96	56.93	40.22	28.02	16.09	10.71	5.76	3.01	2.54	1.29	1.17	14.00
1992	100.64	93.18	82.31	66.39	52.55	38.45	26.64	19.49	10.60	7.05	3.96	1.92	1.75	0.82	13.86
1993	105.51	82.38	75.88	64.57	48.65	35.48	24.00	17.39	13.13	6.86	4.95	2.75	1.30	1.27	13.56
1994	116.26	86.34	67.14	59.88	48.67	34.11	22.80	15.01	10.73	7.96	4.35	3.25	1.79	0.78	12.88
1995	100.47	95.08	69.88	52.92	45.37	34.93	22.45	14.65	8.88	5.98	5.04	2.65	2.22	1.15	12.19
1996	121.71	82.21	77.36	55.67	41.46	35.11	26.27	16.68	10.39	6.04	4.26	3.73	1.83	1.60	12.82
1997	136.41	99.58	66.65	60.54	41.76	30.16	25.02	18.98	11.60	6.71	4.03	2.74	2.49	1.16	12.87
1998	133.93	111.66	81.07	52.33	46.35	30.96	22.10	18.85	14.11	8.19	4.78	2.72	1.82	1.78	13.16
1999	155.78	109.65	91.25	65.11	40.55	34.79	22.35	16.07	13.74	10.01	5.84	3.20	1.67	1.11	13.57
2000	147.80	127.51	89.62	73.57	50.92	29.93	24.87	15.75	11.26	9.76	7.50	4.30	2.29	1.11	14.39
2001	125.09	120.98	104.2	72.31	58.79	39.69	22.03	18.35	10.90	7.54	7.14	5.54	3.11	1.61	15.36
2002	124.88	102.40	98.85	84.54	57.80	46.01	29.93	16.02	12.91	6.99	5.06	5.03	3.97	2.19	16.53
2003	125.25	102.24	83.69	79.33	67.22	45.31	35.40	22.72	11.23	8.79	4.62	3.19	3.28	2.61	17.43
2004	120.97	102.49	83.47	67.58	61.97	51.78	34.37	27.05	16.89	7.60	6.17	2.85	1.82	1.99	17.75
2005	116.34	99.01	83.41	66.54	52.98	46.54	38.31	26.05	20.58	12.70	5.62	4.59	1.95	1.14	18.23
2006	123.22	95.23	80.87	66.70	51.37	39.83	33.45	27.21	18.14	14.46	9.15	3.90	3.25	1.20	18.04
2007	112.76	100.88	77.77	65.14	52.06	38.33	28.74	24.16	19.29	12.51	10.7	6.70	2.68	2.29	17.89
2008	107.76	92.31	82.48	62.95	51.68	39.98	27.88	20.99	17.45	13.55	8.78	7.72	4.59	1.44	17.54
2009	115.57	88.21	75.36	66.43	49.35	39.16	29.13	19.54	14.09	11.87	9.68	6.28	5.46	3.10	17.26
2010	92.68	94.58	71.99	60.53	52.24	37.38	28.20	20.50	12.91	8.88	8.08	6.83	4.04	3.43	16.32
2011	60.91	75.87	77.22	57.68	47.26	39.57	26.69	19.89	13.58	8.00	5.57	5.52	4.36	2.28	15.26
2012	105.00	49.85	61.89	61.87	44.66	35.74	28.64	18.77	13.41	8.49	4.90	3.59	3.63	2.76	14.73
2013	105.00	85.97	40.73	49.97	49.06	34.50	26.61	20.98	13.11	8.87	5.54	3.08	2.08	2.11	14.17

TAFLA 3.27.5

Humar. Veiðidánartala eftir aldri á árunum 1982–2012.

Nephrops. *Fishing mortality by age in the years 1982–2012.*

Ár	Aldur *Age*														Meðaltal 6–13
Year	3	4	5	6	7	8	9	10	11	12	13	14	15	16	*Average 6–13*
1982	0.00	0.01	0.06	0.10	0.15	0.21	0.24	0.28	0.33	0.27	0.27	0.08	0.17	0.29	0.23
1983	0.00	0.01	0.06	0.10	0.14	0.19	0.19	0.33	0.40	0.27	0.41	0.28	0.12	0.35	0.25
1984	0.00	0.02	0.06	0.10	0.14	0.19	0.17	0.20	0.36	0.28	0.32	0.55	0.35	0.29	0.22
1985	0.00	0.01	0.05	0.08	0.13	0.20	0.24	0.26	0.30	0.25	0.29	0.23	0.47	0.28	0.22
1986	0.00	0.01	0.05	0.11	0.19	0.25	0.24	0.31	0.35	0.17	0.29	0.25	0.13	0.28	0.24
1987	0.00	0.00	0.03	0.10	0.18	0.28	0.29	0.33	0.44	0.29	0.23	0.30	0.28	0.32	0.27
1988	0.00	0.01	0.03	0.08	0.15	0.22	0.29	0.35	0.32	0.28	0.25	0.15	0.30	0.30	0.24
1989	0.00	0.01	0.04	0.06	0.10	0.18	0.19	0.27	0.41	0.25	0.31	0.23	0.16	0.31	0.22
1990	0.00	0.01	0.07	0.11	0.13	0.13	0.15	0.17	0.22	0.22	0.20	0.26	0.23	0.20	0.17
1991	0.00	0.01	0.06	0.13	0.19	0.21	0.16	0.22	0.22	0.17	0.25	0.17	0.25	0.22	0.20
1992	0.00	0.01	0.04	0.11	0.19	0.27	0.23	0.19	0.24	0.15	0.17	0.19	0.12	0.19	0.19
1993	0.00	0.01	0.04	0.08	0.16	0.24	0.27	0.28	0.30	0.26	0.22	0.23	0.30	0.27	0.23
1994	0.00	0.01	0.04	0.08	0.13	0.22	0.24	0.33	0.39	0.26	0.30	0.18	0.24	0.32	0.24
1995	0.00	0.01	0.03	0.04	0.06	0.09	0.10	0.14	0.19	0.14	0.10	0.17	0.13	0.14	0.11
1996	0.00	0.01	0.05	0.09	0.12	0.14	0.13	0.16	0.24	0.20	0.24	0.21	0.26	0.21	0.16
1997	0.00	0.01	0.04	0.07	0.10	0.11	0.08	0.10	0.15	0.14	0.19	0.21	0.14	0.30	0.12
1998	0.00	0.00	0.02	0.06	0.09	0.13	0.12	0.12	0.14	0.14	0.20	0.29	0.30	0.30	0.12
1999	0.00	0.00	0.02	0.05	0.10	0.14	0.15	0.16	0.14	0.09	0.11	0.14	0.21	0.30	0.12
2000	0.00	0.00	0.01	0.02	0.05	0.11	0.10	0.17	0.20	0.11	0.10	0.12	0.15	0.30	0.11
2001	0.00	0.00	0.01	0.02	0.05	0.08	0.12	0.15	0.24	0.20	0.15	0.14	0.15	0.30	0.13
2002	0.00	0.00	0.02	0.03	0.04	0.06	0.08	0.16	0.19	0.21	0.26	0.23	0.22	0.50	0.13
2003	0.00	0.00	0.01	0.05	0.06	0.08	0.07	0.10	0.19	0.15	0.28	0.36	0.30	0.50	0.12
2004	0.00	0.01	0.03	0.04	0.09	0.10	0.08	0.07	0.09	0.10	0.10	0.18	0.27	0.50	0.08
2005	0.00	0.00	0.02	0.06	0.09	0.13	0.14	0.16	0.15	0.13	0.16	0.14	0.29	0.50	0.13
2006	0.00	0.00	0.02	0.05	0.09	0.13	0.13	0.14	0.17	0.10	0.11	0.18	0.15	0.50	0.11
2007	0.00	0.00	0.01	0.03	0.06	0.12	0.11	0.13	0.15	0.15	0.13	0.18	0.42	1.00	0.11
2008	0.00	0.00	0.02	0.04	0.08	0.12	0.16	0.20	0.19	0.14	0.14	0.15	0.19	1.00	0.13
2009	0.00	0.00	0.02	0.04	0.08	0.13	0.15	0.21	0.26	0.18	0.15	0.24	0.27	1.00	0.15
2010	0.00	0.00	0.02	0.05	0.08	0.14	0.15	0.21	0.28	0.27	0.18	0.25	0.38	1.00	0.17
2011	0.00	0.00	0.02	0.06	0.08	0.12	0.15	0.19	0.27	0.29	0.24	0.22	0.26	1.00	0.18
2012	0.00	0.00	0.01	0.03	0.06	0.10	0.11	0.16	0.21	0.23	0.27	0.34	0.34	0.76	0.15

TAFLA 3.27.6

Humar. Forsendur í framreikningum á þróun stofnsins árin 2014–2015.
Náttúrulegur dánarstuðull M=0.2.

Nephrops. *Input parameters for catch and stock projection for the years 2014–2015.*
Natural mortality coefficient, M=0.2.

Aldur *Age*	Stofnstærð *Stock size*	Veiðimynstur *Selectivity*	Meðalþyngd (g) *Mean weight (g)*
3	105.00	0.00	8
4	85.97	0.01	14
5	40.73	0.05	23
6	49.97	0.12	34
7	49.06	0.22	46
8	34.50	0.35	60
9	26.61	0.42	75
10	20.98	0.60	89
11	13.11	0.80	104
12	8.87	0.85	119
13	5.54	1.00	131
14	3.08	1.00	145
15	2.08	1.00	159
16	2.11	1.00	175

Stofnstærð:	Stofnstærð í milljónum 2013.
Veiðimynstur:	Hlutfallsleg veiðidánartala hvers aldursflokks 2012.
Meðalþyngd:	Út frá sambandi lengdar og þyngdar.
Stock size:	*Stock size in millions in 2013.*
Selectivity:	*Relative fishing mortality on each age group in 2012.*
Mean weight:	*From length-weight regression.*

TAFLA 3.28.1

Rækja. Afli (í tonnum) íslenskra skipa eftir svæðum árin 1955–2012.

Northern shrimp. *Landings (in tonnes) of the Icelandic fleet by area in 1955–2012.*

	Íslandsmið *Icelandic waters*			Önnur veiðisvæði *Other areas*			
Ár *Year*	Djúpslóð *Offshore*	Grunnslóð *Inshore*	Samtals *Total*	Flæmingjagrunn *Flemish Cap*	Miklibanki *Grand Bank*	Barentshaf *Barents Sea*	Samtals *Total*
1955	-	390	390	-	-	-	390
1956	-	772	772	-	-	-	772
1957	-	500	500	-	-	-	500
1958	-	768	768	-	-	-	768
1959	-	1 068	1 068	-	-	-	1 068
1960	-	1 396	1 396	-	-	-	1 396
1961	-	1 207	1 207	-	-	-	1 207
1962	-	541	541	-	-	-	541
1963	-	733	733	-	-	-	733
1964	-	675	675	-	-	-	675
1965	-	926	926	-	-	-	926
1966	-	1 776	1 776	-	-	-	1 776
1967	-	1 428	1 428	-	-	-	1 428
1968	-	2 469	2 469	-	-	-	2 469
1969	-	3 281	3 281	-	-	-	3 281
1970	-	4 431	4 431	-	-	-	4 431
1971	-	6 248	6 248	-	-	-	6 248
1972	10	5 334	5 344	-	-	-	5 344
1973	-	7 286	7 286	-	-	-	7 286
1974	74	6 442	6 516	-	-	-	6 516
1975	415	4 526	4 941	-	-	-	4 941
1976	415	6 366	6 781	-	-	-	6 781
1977	839	6 310	7 149	-	-	-	7 149
1978	1 726	5 537	7 263	-	-	-	7 263
1979	1 621	7 222	8 843	-	-	-	8 843
1980	3 886	6 074	9 960	-	-	-	9 960
1981	2 344	5 803	8 147	-	-	-	8 147
1982	1 729	7 451	9 180	-	-	-	9 180
1983	6 097	7 005	13 102	-	-	-	13 102
1984	13 761	10 655	24 416	-	-	-	24 416
1985	15 983	8 911	24 894	-	-	-	24 894
1986	28 837	6 994	35 831	-	-	-	35 831
1987	33 466	5 170	38 636	-	-	-	38 636
1988	25 353	4 393	29 746	-	-	-	29 746
1989	20 699	6 086	26 785	-	-	-	26 785
1990	22 125	7 709	29 834	-	-	-	29 834
1991	29 600	8 657	38 257	-	-	-	38 257
1992	37 102	9 800	46 902	-	-	-	46 902
1993	41 283	12 598	53 881	2 243	-	-	56 124
1994	56 150	16 642	72 792	2 300	-	-	75 097
1995	61 334	14 589	75 923	7 622	-	-	83 545
1996	55 996	12 465	68 461	20 681	-	-	89 142
1997	65 298	9 617	74 915	6 381	-	514	81 811
1998	49 667	5 847	55 514	6 572	-	642	62 728
1999	27 142	4 374	31 516	9 277	-	2 295	43 088
2000	20 196	3 839	24 035	8 912	97	705	33 749
2001	21 653	4 072	25 725	5 265	55	-	31 045
2002	26 656	2 548	29 204	5 741	55	-	35 000
2003	22 332	1 576	23 908	4 715	133	-	28 756
2004	15 799	560	16 359	3 567	105	-	20 026
2005	3 792	705	4 497	4 014	140	-	8 651
2006	608	250	858	1 958	226	-	3 042
2007	1 681	330	2 011	-	-	10	2 021
2008	1 450	744	2 194	-	-	-	2 194
2009	4 122	1 393	5 515	-	-	-	5 515
2010	6 404	1 144	7 548	-	185	-	7 733
2011	6 270	1 407	7 677	-	124	574	8 375
2012[1)]	7 339	2 453	9 793	-	-	731	10 523

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.28.2

Rækja. Afli rækju á grunnslóð í tonnum eftir svæðum fiskveiðiárin 1990/91–2011/2012.

Northern shrimp. *Inshore landings by area (tonnes) in the quota years 1990/91–2011/2012.*

Ár *Year*	Arnar-fjörður	Ísafj.-djúp	Húna-flói	Skaga-fjörður	Eyja-fjörður	Skjálf-andi	Öxar-fjörður	Við Eldey	Breiðafjörður		Kollu-áll[1)]	Jökul-djúp[1)]	Samtals *Total*
									Norður-firðir	Sunnan-verður[1)]			
1990/91	720	3 099	2 004	502	-	125	151	212	5	335	1 242	20	8 415
1991/92	605	2 554	2 107	500	-	310	500	514	-	138	1 962	11	9 201
1992/93	751	2 501	1 500	451	-	603	697	852	-	402	4 619	14	12 390
1993/94	853	2 511	1 044	501	-	801	905	1 352	-	258	4 497	54	12 976
1994/95	699	1 955	2 305	708	-	797	1 445	1 115	47	294	5 074	1 397	15 836
1995/96	708	2 756	2 670	1 528	47	1 023	1 308	1 756	71	68	1 784	580	14 299
1996/97	720	2 254	2 084	1 570	-	1 009	1 762	632	28	1	258	24	10 342
1997/98	546	1 435	1 432	1 224	-	682	1 509	-	93	-	10	1	6 932
1998/99	551	1 025	536	1 010	-	213	1 504	-	82	-	7	1	4 929
1999/00	548	1 722	3	399	-	-	527	-	60	34	30	1	3 324
2000/01	639	1 287	-	-	-	-	121	-	80	397	696	1 164	4 384
2001/02	752	1 497	-	-	-	2	92	-	49	-	506	0	2 898
2002/03	637	989	-	-	-	4	5	-	-	38	49	2	1 724
2003/04	748	-	-	-	-	2	2	-	-	42	166	1	961
2004/05	440	-	-	-	-	-	-	-	-	27	238	-	705
2005/06	9	3	-	-	-	-	-	-	-	29	209	-	250
2006/07	3	3	-	-	-	-	-	-	-	13	301	2	321
2007/08	158	9	-	-	-	-	-	-	-	51	472	7	697
2008/09	508	2	-	-	-	-	-	-	-	194	580	5	1 289
2009/10	312	1	-	-	-	-	-	1	-	25	787	18	1 144
2010/11	328	835	-	-	-	-	-	1	-	103	311	-	1 407
2011/12	221	1 040	-	-	-	2	-	-	-	143	1 479	10	2 895

[1)] Veiðisvæðið við Snæfellsnes. *Refered to as Snæfellsnes area.*

TAFLA 3.28.3

Rækja. Meðalfjöldi í kg á rækjusvæðunum árin 1990–2012.
Northern shrimp. *Mean number per kg by area in the period 1990–2012.*

Ár	Arnar-fjörður	Ísafj.-djúp	Húna-flói	Skaga-fjörður	Skjálf-andi	Öxar-fjörður	Við Eldey	Breiðafjörður Norður-firðir	Breiðafjörður Sunnan-verður[1)]	Kollu-áll[1)]	Jökul-djúp[1)]
1990	256	349	380	311	562	484	202	590	189	219	-
1991	383	393	382	322	341	277	260	-	216	302	-
1992	390	370	409	302	399	314	214	-	186	215	(227)
1993	319	378	481	319	391	342	233	660	203	254	-
1994	308	429	400	391	366	304	271	-	212	318	-
1995	272	394	387	356	394	306	232	505	206	309	(281)
1996	307	363	331	340	299	248	205	464	191	294	269
1997	312	357	362	333	264	255	243	411	212	247	364
1998	364	465	483	382	347	232	292	397	218	264	261
1999	367	348	536	383	457	217	246	(494)	217	262	324
2000	462	447	470	(397)	363	338	240	(337)	191	187	-
2001	395	389	590	534	472	585	254	336	234	237	263
2002	394	426	(525)	347	272	687	207	370	188	235	249
2003	314	428	403	(351)	283	497	-	419	193	213	(261)
2004	353	263	305	-	-	-	184	(346)	160	183	(171)
2005	361	381	(305)	(370)	303	292	-	-	186	184	-
2006	297	355	(349)	-	-	306	-	-	170	205	-
2007	246	283	(339)	(587)	393	315	-	-	157	-	-
2008	368	279	(313)	525	288	395	-	-	200	175	228
2009	308	324	433	(478)	332	303	-	(726)	185	194	235
2010	307	404	466	(485)	395	308	200	-	184	224	-
2011	387	294	373	445	410	395	-	-	197	258	(219)
2012	310	353	421	(493)	329	388	-	-	180	195	208

[1)] Veiðisvæðið við Snæfellsnes. *Referred to as Snæfellsnes area.*

Fjöldi er byggður á stofnmælingu innfjarðarækju. Tölur innan sviga merkja að sýni voru færri en 5.
Numbers from the inshore areas are survey data. Numbers in parentheses indicate samples of less than 5.

TAFLA 3.28.4

Rækja. Afli úthafsrækju Íslandsmiðum í tonnum eftir svæðum árin 1991–2012.
Northern shrimp. *Offshore landings in Icelandic waters by area (tonnes) during the period 1991–2012.*

Ár *Year*	Dohrnbanki	Hali	Norðurkantur	Við Sporðagrunn	Skagafjarðardjúp	Við Kolbeinsey	Eyjafjarðarál	Við Grímsey	Við Sléttugrunn	Langanesdjúp	Bakkaflóadjúp	Héraðsdjúp	Brattikantur	Eilífðarkantur	Rauða torgið	Önnur svæði *Other areas*	Samt. *Total*
1991	469	821	10 488	3 820	884	6 801	1 089	3 243	555	37	156	839	123	1	274	-	29 600
1992	1 751	899	8 649	3 036	1 263	6 837	1 270	5 882	762	90	2 071	4 260	65	5	154	108	37 102
1993	2 553	975	10 875	1 894	2 720	5 113	2 573	7 726	1 581	664	1 074	2 962	55	24	280	214	41 283
1994	1 426	2 052	13 152	3 121	5 305	10 437	3 042	7 687	2 868	1 615	1 264	3 534	212	35	330	70	56 150
1995	1 150	248	17 684	3 007	5 854	12 208	4 358	6 531	1 494	1 314	1 989	4 612	266	58	487	74	61 334
1996	566	175	14 140	2 570	2 809	16 808	2 395	6 329	1 541	1 059	1 373	5 368	159	35	663	6	55 996
1997	2 856	880	14 902	1 395	2 395	11 541	2 201	9 243	3 327	4 751	1 513	8 584	305	28	1 372	5	65 298
1998	1 421	502	12 878	561	1 747	7 697	920	5 768	5 762	2 802	1 425	6 692	600	127	765	-	49 667
1999	769	17	5 214	1 523	2 562	4 756	1 881	4 957	1 858	179	712	1 214	44	25	1 419	12	27 142
2000	132	6	3 477	4 223	1 603	2 499	745	2 230	1 622	188	486	1 868	57	37	1 021	2	20 196
2001	9	2	2 119	893	1 825	2 255	1 207	3 854	4 656	979	866	2 586	98	4	299	1	21 653
2002	1 231	357	9 909	2 040	3 028	3 905	1 074	2 172	1 855	154	50	338	1	11	531	-	26 656
2003	703	15	7 321	510	1 671	3 950	504	4 120	2 307	177	6	779	20	2	247	-	22 332
2004	411	178	5 030	494	1 970	3 438	682	1 961	1 498	82	-	2	-	-	53	-	15 799
2005	29	2	863	11	387	938	97	943	518	-	1	-	4	-	-	-	3 792
2006	-	-	26	1	20	88	1	280	193	-	-	-	-	-	-	-	608
2007	-	1	568	37	117	458	8	287	205	-	-	-	-	-	-	-	1 681
2008	-	-	259	162	158	722	6	67	76	-	-	-	-	-	-	-	1 450
2009	-	99	1 276	67	185	1 744	37	503	211	-	-	-	-	-	-	-	4 122
2010	4	3	1 351	10	107	2 354	83	1 448	1 032	10	-	-	-	5	1	-	6 404
2011	68	-	955	37	110	1 110	230	2 772	1 050	-	-	-	3	-	3	-	6 270
2012[1)]	-	128	1 323	760	425	699	127	2 775	1 096	1	-	-	-	5	-	-	7 339

[1)] Bráðabirgðatölur. *Provisional figures.*

TAFLA 3.28.5

Rækja. Meðalfjöldi í kg á úthafsrækjusvæðunum árin 1990–2012.

Northern shrimp. *Mean number per kg by offshore areas in the period 1990–2012.*

Ár *Year*	Dohrnbanki	Hali	Norðurkantur	Við Sporðagrunn	Skagafjarðardjúp	Við Kolbeinsey	Eyjafjarðaráll	Við Grímsey	Við Sléttugrunn	Langanesdjúp	Bakkaflóadjúp	Héraðsdjúp	Brattikantur	Eilífðarkantur	Rauða torgið	Lónsdjúp	Rósagarður	Grindavíkurdjúp
1990	88	-	181	224	241	181	225	272	231	215	218	242	(198)	(169)	162	-	-	-
1991	103	-	162	198	258	184	186	305	242	201	234	280	(131)	(124)	164	-	-	-
1992	92	150	161	250	333	182	301	375	268	240	378	311	(183)	-	130	-	-	-
1993	102	160	178	226	280	192	247	395	261	228	284	240	-	-	112	(237)	(86)	145
1994	(93)	161	193	238	319	168	167	423	281	218	337	348	-	-	179	-	-	179
1995	(74)	179	193	259	360	203	261	390	366	263	360	349	-	-	152	-	-	(134)
1996	105	148	176	216	258	190	198	289	283	282	243	244	-	-	158	-	-	-
1997	86	171	195	190	244	222	197	329	304	295	314	282	-	-	153	-	-	-
1998	91	190	196	220	233	201	184	289	281	316	335	279	(252)	-	194	-	-	-
1999	107	165	185	213	260	193	193	292	296	282	267	294	-	-	169	-	(87)	-
2000	-	178	170	253	335	197	225	327	357	293	293	299	-	-	169	-	-	-
2001	-	162	158	237	322	168	196	433	355	282	242	251	-	-	136	-	-	(373)
2002	90	143	171	241	307	188	187	315	392	326	253	282	-	-	171	-	-	-
2003	89	181	178	208	246	225	210	274	356	352	271	279	-	-	199	-	-	-
2004	80	150	193	213	245	198	221	264	322	328	270	286	-	-	192	-	-	-
2005	-	159	188	198	229	197	197	244	290	328	285	286	-	-	222	-	-	-
2006	-	-	172	206	190	192	168	238	263	259	311	309	-	-	199	-	-	-
2007	-	-	177	210	223	174	192	262	287	291	352	232	-	-	180	-	-	-
2008	-	-	169	191	224	174	172	260	272	308	353	233	-	-	153	-	-	-
2009	-	-	160	172	185	156	151	220	241	268	280	245	-	-	146	-	-	-
2010	-	-	149	177	196	163	160	236	225	288	288	255	-	-	146	-	-	-
2011	-	-	160	191	216	151	162	249	236	287	270	236	-	-	146	-	-	-
2012	-	-	155	188	223	160	175	276	255	256	330	289	-	-	149	-	-	-

Fjöldi er byggður á stofnmælingu úthafsrækju á svæðunum Norðurkantur–Héraðsdjúp. Tölur innan sviga merkja að sýni voru færri en 5.

Numbers from the offshore areas Norðurkantur–Héraðsdjúp are survey data. Numbers in parentheses indicate samples of less than 5.

TAFLA 3.29.1

Hörpudiskur. Afli (í tonnum) eftir svæðum 1969–2012.

Iceland scallop. *Landings (in tonnes) by area 1969–2012.*

Ár *Year*	Breiða-fjörður	Arnar-fjörður	Ísafjarðar djúp	Húna-flói	Hval-fjörður	Patreks-fjörður	Dýra-fjörður	Skaga-fjörður	Vopna-fjörður	Samtals *Total*
1969	-	-	402	-	-	-	-	-	-	402
1970	2 216	-	199	17	-	-	-	-	-	2 432
1971	2 542	140	534	374	-	68	-	-	-	3 658
1972	4 564	295	2 087	306	-	78	19	-	-	7 349
1973	3 218	196	1 219	72	-	140	3	-	-	4 848
1974	2 851	-	-	-	-	-	-	-	-	2 851
1975	2 729	27	-	-	-	28	-	-	-	2 784
1976	3 420	148	-	101	-	-	-	-	-	3 669
1977	3 752	73	260	342	-	-	-	-	-	4 427
1978	7 575	126	603	270	-	17	128	-	-	8 719
1979	6 055	178	473	937	-	16	141	-	-	7 800
1980	7 133	279	615	855	42	-	155	-	-	9 079
1981	8 328	522	687	228	315	32	74	-	-	10 186
1982	10 034	670	634	67	521	27	123	-	-	12 076
1983	11 218	842	921	1 695	346	59	100	-	-	15 181
1984	11 880	550	867	1 733	82	67	28	376	-	15 583
1985	12 128	754	881	1 986	-	16	120	665	518	17 068
1986	12 708	619	707	1 232	-	-	121	513	529	16 429
1987	11 071	227	314	1 576	-	-	84	-	-	13 272
1988	9 810	-	218	-	-	-	30	-	-	10 058
1989	10 066	-	469	177	-	-	60	-	-	10 772
1990	10 090	263	704	1 199	-	-	124	-	-	12 380
1991	8 918	339	346	598	-	-	-	-	96	10 297
1992	10 553	277	647	765	-	-	88	24	99	12 443
1993	10 752	128	431	390	-	97	72	-	-	11 870
1994	7 485	313	147	450	-	-	-	-	-	8 401
1995	8 000	-	3	379	-	-	-	-	-	8 382
1996	8 473	-	-	389	-	-	-	11	-	8 873
1997	8 882	244	-	958	127	15	-	140	-	10 424
1998	8 395	94	-	1 248	195	31	-	75	-	10 098
1999	8 131	95	-	180	361	-	-	5	-	8 868
2000	8.589	126	-	66	293	-	-	-	-	9 074
2001	6 331	4	-	-	164	-	-	-	-	6 499
2002	5 124	-	-	-	68	-	-	-	-	5 192
2003	789	-	-	-	-	-	-	-	-	789
2004	-	-	-	-	-	-	-	-	-	0
2005	-	-	-	-	-	-	-	-	-	0
2006	-	-	-	-	-	-	-	-	-	0
2007	-	-	-	-	-	-	-	-	-	0
2008	-	-	-	-	-	-	-	-	-	0
2009	-	-	-	-	-	-	-	-	-	0
2010	-	-	-	-	-	-	-	-	-	0
2011	-	-	-	-	-	-	-	-	-	0
2012	-	-	-	-	-	-	-	-	-	0

TAFLA 3.30.1
Kúfskel. Afli (í tonnum) eftir svæðum á árunum 1987–2012.
Ocean quahog. *Landings (in tonnes) by area in 1987–2012.*

Ár *Year*	Faxaflói *Faxa Bay*	Norðvesturland *Northwest area*	Norðausturland *Northeast area*	Afli alls *Total landings*
1987	-	1 085	-	1 085
1988	-	4 724	-	4 724
-				
1994	-	-	3	3
1995	10	2 060	-	2 070
1996	-	5 720	664	6 384
1997	-	2 867	1 483	4 350
1998	-	7 680	-	7 680
1999	-	2 736	1 151	3 887
2000	-	-	1 584	1 584
2001	-	-	7 424	7 424
2002	-	-	12 353	12 353
2003	-	-	14 431	14 431
2004	-	-	10 376	10 376
2005	-	-	2 045	2 045
2006	-	-	451	451
2007	-	-	3 253	3 253
2008	-	-	3 840	3 840
2009	-	-	615	615
2010	-	-	1	1
2011	-	-	5	5
2012	-	-	16	16

TAFLA 3.31.1
Beitukóngur. Afli ásamt afla á sóknareiningu (kg í gildru) í Breiðafirði árin 1996–2012.
Common whelk. *Landings (in tonnes) and CPUE (kg per hauled pot) in Breiðafjörður 1996–2012.*

Ár *Year*	Afli *Landings*	Afli á sóknareiningu *CPUE*
1996	500	4.3
1997	1 284	2.7
1998	10	3.5
1999	417	3.3
2000	825	3.7
2001	709	3.6
2002	-	-
2003	248	4.8
2004	863	3.1
2005	991	3.8
2006	839	2.9
2007	554	2.9
2008	398	1.9
2009	116	2.6
2010	142	3.3
2011	512	2.6
2012	375	1.7

TAFLA 3.32.1
Sæbjúga. Afli (í tonnum) ásamt afla á togtíma (kg) á eftir svæðum 2006–2012.
Sea cucumber. *Landings (in tonnes) and CPUE (kg/hour) by area 2006–2012.*

	Svæði *Area*				Svæði *Area*			
Ár	Vestur	Norður	Suður	Heildarafli	Vestur	Norður	Suður	Meðalafli á sóknareiningu
Year	*West*	*North*	*South*	*Total landings*	*West*	*North*	*South*	*Mean CPUE*
2006	50	-	-	50	-	-	-	-
2007	-	-	-	-	-	-	-	-
2008	998	-	-	998	-	-	-	687
2009	1 040	-	114	1 154	863	-	1 712	916
2010	1 360	-	885	2 246	904	-	1 080	938
2011	985	-	1 670	2 655	808	-	1 363	1 098
2012	775	-	640	1 415	1 103	-	1 187	1 140

TAFLA 3.33.1
Ígulker. Afli (í tonnum) og afli á togtíma (kg/klst.) árin 1993–2012.
Sea urchin. *Landings (in tonnes) and CPUE (kg/hour) in 1993–2012.*

Ár	Afli	Afli á sóknareiningu
Year	*Landings*	*CPUE*
1993	694	-
1994	1 493	-
1995	981	-
1996	492	-
1997	20	-
1998	1	-
1999	10	-
2000	2	-
2001	0	-
2002	0	-
2003	0	-
2004	40	-
2005	29	-
2006	35	461
2007	134	381
2008	126	373
2009	140	483
2010	146	401
2011	144	381
2012	135	365

TAFLA 3.34.1
Hvalir. Veiðar við Ísland (fjöldi) 1948–2012.
Whales. *Number of whales caught by the Icelandic whaling fleet 1948–2012.*

Ár *Year*	Steypireyður *Blue*	Langreyður *Fin*	Sandreyður *Sei*	Búrhvalur *Sperm*	Hnúfubakur *Humpback*	Hrefna[3)] *Minke*
1948	24	195	5	15	-	-
1949	33	249	12	28	2	-
1950	28	226	-	11	-	-
1951	11	312	2	13	1	-
1952	14	224	25	2	-	-
1953	5	207	70	48	2	-
1954	9	177	93	54	1	-
1955	10	236	134	20	-	-
1956	8	265	72	95	-	-
1957	10	348	78	81	-	-
1958	5	289	91	123	-	-
1959	6	178	67	120	-	-
1960	-	160	42	177	-	-
1961	-	142	58	150	-	-
1962	-	303	44	136	-	-
1963	-	283	20	136	-	-
1964	-	217	89	138	-	-
1965	-	289	74	69	-	-
1966	-	310	41	86	-	-
1967	-	239	48	119	-	-
1968	-	202	3	75	-	-
1969	-	251	69	103	-	-
1970	-	272	44	61	-	-
1971	-	208	240	106	-	-
1972	-	238	132	76	-	-
1973	-	267	138	47	-	-
1974	-	285	9	71	-	90
1975	-	245	138	37	-	181
1976	-	275	3	111	-	195
1977	-	144	131	110	-	194
1978	-	236	14	140	-	198
1979	-	260	84	96	-	202
1980	-	236	100	101	-	201
1981	-	254	100	43	-	200
1982	-	194	71	87	-	212
1983	-	144	100	-	-	204
1984	-	167	95	-	-	178
1985	-	161	38	-	-	145
1986[1)]	-	76	40	-	-	-
1987[1)]	-	80	20	-	-	-
1988[1)]	-	68	10	-	-	-
1989[1)]	-	68	-	-	-	-
1990[2)]	-	-	-	-	-	-
1991[2)]	-	-	-	-	-	-
1992[2)]	-	-	-	-	-	-
1993[2)]	-	-	-	-	-	-
1994[2)]	-	-	-	-	-	-
1995[2)]	-	-	-	-	-	-
1996[2)]	-	-	-	-	-	-
1997[2)]	-	-	-	-	-	-
1998[2)]	-	-	-	-	-	-
1999[2)]	-	-	-	-	-	-
2000[2)]	-	-	-	-	-	-
2001[2)]	-	-	-	-	-	-
2002[2)]	-	-	-	-	-	-
2003[1)]	-	-	-	-	-	37
2004[1)]	-	-	-	-	-	25
2005[1)]	-	-	-	-	-	39
2006	-	7	-	-	-	60[1)] + 1
2007	-	-	-	-	-	39[1)] + 6
2008	-	-	-	-	-	38
2009	-	125	-	-	-	81
2010	-	148	-	-	-	60
2011	-	-	-	-	-	58
2012	-	-	-	-	-	52

[1)] Skv. sérstöku leyfi Sjávarútvegsráðuneytisins. *In accordance with special permit issued by the Government of Iceland.*
[2)] Engar hvalveiðar í atvinnuskyni leyfðar árin 1986–2005. *No permits issued for commercial whaling in the period 1986–2005.*
[3)] Engar opinberar skýrslur um veiðar fyrir árin 1948–1973. *No official statistics available for the period 1948–1973.*

TAFLA 3.35.1

Selir. Selveiði við Ísland (fjöldi) 1962–2012 og fjöldi veiðimanna frá 1982.

Seals. *Number of seals caught in Iceland 1962–2012 and sealers from 1982.*

Ár *Year*	Heildar-veiði *Total catch*	Landsels-kópar *Harbour pups*	Útsels-kópar *Grey seal pups*	Eldri landselur *Older harbour*	Eldri útselur *Older grey*	Annað *Other*	Eldri land-/útselur *Older harbour/grey*	Ógreint *Unspeci-fied*
1962[1]	5 786	5 101	293	-	-	-	392	-
1963[1]	6 573	5 795	568	-	-	-	210	-
1964[1]	7 063	6 176	593	-	-	-	294	-
1965[1]	6 581	5 598	767	-	-	-	216	-
1966[1]	6 148	5 578	404	-	-	-	166	-
1967[1]	4 977	4 481	449	-	-	-	47	-
1968[1]	5 726	5 049	524	-	-	-	153	-
1969[1]	6 666	5 831	579	-	-	-	256	-
1970[1]	6 740	5 942	404	-	-	-	394	-
1971[1]	6 894	6 126	557	-	-	-	211	-
1972[2]	6 930	6 237	415	-	-	-	278	-
1973[2]	6 803	5 996	483	-	-	-	324	-
1974[2]	6 240	5 534	406	-	-	-	300	-
1975[2]	6 673	6 111	122	-	-	-	440	-
1976[2]	6 470	5 895	274	-	-	-	301	-
1977[2]	6 601	5 705	96	-	-	-	267	533
1978[2]	4 623	4 030	93	168	53	18	87	174
1979[2]	4 978	4 278	201	253	143	3	100	-
1980[2]	3 648	3 357	54	7	31	8	-	191
1981[2]	2 974	2 510	3	94	25	8	219	115

Ár *Year*	Heildar-veiði *Total catch*	Landsels-kópar *Harbour pups*	Útsels-kópar *Grey pups*	Eldri landselur *Older harbour*	Eldri útselur *Older grey*	Annað *Others*	Landselur aldur óþekktur *Harbour age unknown*	Útselur aldur óþekktur *Grey age unknown*	Fjöldi veiðimanna[5] *Sealers*
1982[3]	4 656	2 367	1 154	634	488	13	-	-	249
1983[3]	5 110	2 025	803	1 672	563	47	-	-	314
1984[3]	5 512	2 485	1 079	1 114	782	52	-	-	348
1985[3]	6 094	2 254	1 245	1 498	1 097	-	-	-	335
1986[3]	6 450	2 481	1 187	1 446	1 331	5	-	-	349
1987[3]	5 166	1 664	982	1 376	1 128	16	-	-	311
1988[3]	3 422	867	659	905	986	5	-	-	191
1989[3]	4 863	982	1 169	1 232	1 437	43	-	-	223
1990[3]	2 462	546	1 088	221	586	21	-	-	358
1991[3]	1 866	454	1 007	9	393	3	-	-	374
1992[3]	3 181	624	1 148	525	828	56	-	-	400
1993[3]	3 068	971	973	225	787	112	-	-	144
1994[3]	2 814	1 032	960	7	655	160	-	-	135
1995[3]	2 216	860	943	5	384	24	-	-	59
1996[3]	1 825	848	543	2	421	11	-	-	49
1997[3]	1 979	676	356	18	920	9	-	-	58
1998[3]	1 197	545	143	21	424	64	-	-	50
1999[3]	1 409	638	255	11	407	98	-	-	54
2000[3]	1 188	595	105	61	398	29	-	-	59
2001[3]	1 062	571	152	40	278	21	-	-	52
2002[4]	773	364	162	7	179	13	42	6	34 (10)
2003[4]	938	405	253	11	252	5	12	-	46 (5)
2004[4]	524	140	96	6	202	6	70	4	32 (17)
2005[4]	395	120	85	1	128	1	58	2	25 (17)
2006[4]	482	100	99	-	112	4	92	75	18 (11)
2007[4]	384	72	84	-	185	6	32	5	16 (12)
2008[4]	342	33	57	1	123	11	117	-	24 (4)
2009[4]	318	57	-	-	-	93	97	71	
2010[4]	451	66	98	1	-	114	123	49	24(45)
2011[4]	396	50	107	18	-	197	17	7	
2012[4]	632	100	88	5	18	177	146	98	69(38)

[1] Byggt á gögnum um verslun og útflutning selskinna. Heimild: Teitur Arnlaugsson, Rannsóknastofnun fiskiðnaðarins 1973.
Based on trade and export statistics on seal skin.

[2] Uppruni upplýsinga óþekktur. *Unknown sources.*

[3] Byggt á veiðigögnum og meðafla við hrognkelsaveiðar frá Hringormanefnd og Félagi selabænda.
Based on catch statistics on hunting and bycatch in lumpsucker fisheries.

[4] Byggt á veiðigögnum, meðafla við hrognkelsaveiðar og almennar netaveiðar frá Hringormanefnd, Félagi selabænda og afladagbókum netabáta.
Based on catch statistics on direct hunting and bycatch in gillnet fisheries.

[5] Fjöldi sem stundar veiðar og hrognkelsaveiðimenn sem tilkynna netaveidda seli. Fjöldi netabáta sem skráð hafa seli sem meðafla í sviga.
Number of seal hunters and lumpsucker fishermen who report seal bycatch. Number of gillnet vessels reporting seal bycatch in parentheses

4. English summary of the State of Marine Stocks in Icelandic Waters 2012/2013 – Prospects for the Quota Year 2013/2014

2.1. Cod

Total landings of Atlantic cod (*Gadus morhua*) in 2012 were 196 thousand t, compared to 172 thousand t in 2011. The national TAC for cod in the quota year 2012/2013 was set according to the harvest control rule (HCR) at 195 thousand t.

Mean weights at age in the landings and spring survey have been increasing in recent years and are presently around the long-term average.

Biomass indices in the spring survey have increased over the last 6 years, mostly due to increased abundance of older cod. The indices of year classes 2001–2007 as juveniles were at or below the mean, but are in later years (6–11 year old) above the mean.

The reference biomass (age 4 and older) in 2013 is estimated as 1170 thousand t and the spawning stock as 480 thousand t, compared to B_{lim}=125 and $B_{trigger}$=220 thousand t. The reference biomass has been increasing in recent years and is now larger than observed in the last three decades. The spawning stock has not been so large since the early 1960s. During the last decade, the harvest rate has declined from 34–40% to around 20% and the fishing mortality from above 0.7 in 2000 to 0.26 in 2012. Recruitment during this period has been around 2/3 of the long-term average. The decrease in harvest rate, imposed by management action, has hence been the main reason for the increase in stock size.

Based on the present assessment, the TAC in 2013/2014 should be set at 215 thousand t according to the management plan. Following the HCR will most likely lead to an additional increase in TAC in the medium term. The Marine Research Institute (MRI) emphasizes the importance of managers subtracting all other expected catches prior to allocating the ITQ catches to the fishing fleet.

2.2. Haddock

In 2012, 46 000 t of haddock (*Melanogrammus aeglefinus*) were landed, compared to 49 000 t in 2011. The advice for the quota year 2012/13 was 32 000 t and the TAC was set at 36 000 t.

In March 2013 ICES evaluated a harvest control rule to be precautionary and in conformity with the MSY approach. The rule was adopted by the Icelandic government in April 2013. According to the HCR, TAC for the next fishing year is 40% of the estimated reference biomass (45 cm and larger) in the beginning of the next calendar year. Harvest rate will be reduced below 40% if the spawning stock is estimated to be below 45 000 t. The reference biomass is on average close to the spawning stock, but not sensitive to fluctuations in maturity at age, so unnecessary variability in TAC is avoided.

The spawning stock at the beginning of 2013 is estimated 90 000 tonnes and the harvest rate in 2012 as 42%. Recruitment from year classes 2008–2012 is estimated to be poor, or 23 million age 2 individuals on average. Growth was very poor in 2004–2009 but increased considerably in 2010–2012, when it was estimated to be above average. Mean weight of 6 years and older haddock is close to average, but above average for the small 2008–2012 year classes.

Based on the approved HCR, the MRI recommends a TAC of 38 000 t for the quota year 2013/2014. The TAC is expected to decrease in coming years when the year class 2007 and older disappear from the stock.

2.3. Saithe

In 2012, landings of saithe (*Pollachius virens*) were 52 000 t, a 700 t increase from 2011. The advice for the quota year 2012/2013 was 49 000 t and the TAC was set at 50 000 t.

The reference biomass of age 4 and older is estimated as 321 000 t at the beginning of 2013, with a harvest rate of 17% in 2012, and a fishing mortality of 0.19. The biomass estimate this year is considerably higher than last year, due to a rapid increase in the spring survey indices, but experience shows that this bottom trawl survey is not an accurate indicator for the semi-pelagic saithe stock. A comparison between different assessment models indicates some risk of overestimation this year.

This spring, the Icelandic government adopted a formal management plan for the saithe fishery. ICES has evaluated this management plan and concluded that it is in accordance with the precautionary approach and the MSY framework. It is based on a HCR that sets the upcoming TAC as an average of the last TAC and 20% of the this year's reference biomass. A lower harvest rate is applied if the spawning stock biomass goes below the reference point $B_{trigger}$ (65 000 t). According to the HCR, the saithe TAC for the quota year 2013/2014 will be 57 000 t.

2.4. Golden redfish and *Sebastes viviparous*

In 2012, approximately 43 000 t of **golden redfish** (*Sebastes norvegicus*) were landed in Iceland, similar to 2011. The spring survey index of the fishable biomass is the highest since 1985 and there are

indications from the autumn survey that year classes 1997–2003 are above average. According to an age-length based model (Gadget) the fishable stock has increased since 2005 after a considerable reduction in 1985–1995. MRI recommends a TAC for the quota year 2013/2014 of no more than 52 000 t which is close to MSY.

Exploratory fishery for ***Sebastes viviparus*** started in 1997 with a catch of 1 200 t. The catches declined rapidly until 2000, and between 2001 and 2009 only a few tonnes were landed. In 2010 a direct fishery started again with total landings of 2 600 t, followed by 1 400 t in 2011 and 535 t in 2012. Very little is known about the stock size and sustainable yield. Therefore, MRI recommends that the precautionary approach is adopted in the management of *Sebastes viviparus* fishery in order to ensure sustainability of the resource and recommends a TAC of no more than 1 500 t for the quota year 2013/2014.

2.5. Deep sea redfish

In 2012, 12 000 t of **Icelandic demersal deep sea redfish** were landed, similar to 2011. The lack of long-term indices of abundance prevent analytical assessment, but survey indices from the autumn survey since 2000 are used as basis for advice. The index of fishable biomass decreased between 2000 and 2003 and has since then been stable. ICES and MRI recommend that effort should be kept low and the TAC in Icelandic waters should not exceed 10 000 t for the quota year 2013/2014.

In 2012, an estimated 3 200 t of **shallow pelagic redfish** were caught by Russia on the main fishing grounds south and southeast of Greenland. Annual landings peaked at about 100 000 t in 1993–1995. Given the very low state of the stock, ICES has advised since 2010 that no directed fishery should take place.

In 2012, the estimated landings of **deep pelagic redfish** were about 33 000 t, compared to 47 000 t in 2011 and 59 000 t in 2010. Annual landings were between 75 000 and 140 000 t in 1995–2004. The Icelandic fleet caught about 6 000 t in 2012, compared to 12 000 t in 2011.

ICES will give advice on the pelagic redfish stocks for 2014 in autumn 2013, and will base the advice on the results from the international acoustic/trawl survey conducted in the Irminger Sea and adjacent waters in June–July 2013.

2.6. Greenland halibut

In 2012, approximately 29 000 t of Greenland halibut (*Reinhardtius hippoglossoides*) were landed from the East Greenland, Iceland, and Faroese waters, of which the Icelandic fleet caught 14 000 t. CPUE of the Icelandic trawler fleet has been slowly increasing from a historical low in 2005. Biomass indices from the Icelandic autumn groundfish survey in 1996–2012 show a similar pattern. ICES and MRI recommend that effort should be reduced to a level corresponding to the long-term maximum sustainable yield. Such effort corresponds to a total catch of no more than 20 000 t for the East Greenland, Icelandic and Faeroese waters in the 2013/2014 quota year.

2.7. Halibut

On 1 January 2012 a regulation was issued to ban all directed fishery for halibut (*Hippoglossus hippoglossus*) and that all viable halibut must be released in other fisheries.

The landings of halibut dropped to 35 t in 2012, compared to 555 t in 2011. Historically, halibut has mainly been taken as bycatch in the bottom trawl and longline fisheries. In the last years before the regulations a longline fishery directed at halibut was developing, coinciding with a sharp decline in the survey biomass index. In recent years, the biomass indices from the groundfish survey have declined to a very low level. Currently, the halibut stock seems to be severely depleted, with very little recruitment into the spawning stock in recent years.

The MRI recommends that these regulations should be maintained until clear indications of significant improvement in the stock are visible.

2.8. Plaice

In 2012, 5 900 t of plaice (*Pleuronectes platessa*) were landed. Survey indices have increased somewhat in recent years, and recruitment measurements from the groundfish survey suggest some improvement in the last few years. Stock assessment results show increasing biomass since 2000 and fishing mortality has also been decreasing since then. The MRI recommends that the catch should not exceed 6 500 t in the quota year 2013/2014, and that regulations regarding area closures on spawning grounds remain in effect.

2.9. Dab

In 2012, 860 t of dab (*Limanda limanda*) were landed. Between 1987 and 1997, landings of dab increased from 1 200 to 8 000 t, but have since decreased considerably. CPUE is now near a historical low. The MRI recommends that the TAC for the quota year 2013/2014 should not exceed what is considered to be bycatch in other fisheries. Considering the state of the stock, this could amount to about 500 t from the defined management area for the 2013/2014 quota year.

2.10. Long rough dab

In 2012, 140 t of long rough dab (*Hippoglossoides platessoides*) were landed, compared to the record high of 6 400 t in 1996. Survey indices and CPUE have been near a historical low in recent years. The MRI recommends that the TAC for the quota year 2013/2014 should not exceed what is expected to be landed as bycatch in other fisheries. Considering the state of the stock, this could amount

to around 200 t for the 2013/2014 quota year from the defined management area.

2.11. Witch

Since 1988, landings of witch (*Glyptocephalus cynoglossus*) have been between 900 and 3 000 t, with landings in 2012 amounting to 1 300 t.

The abundance index for the fishable stock reached a maximum in 2005, but has since been declining and CPUE has shown a similar trend. The size of the witch stock remains uncertain, but survey data indicate that both the fishable stock and recruitment have declined in recent years. The MRI recommends a TAC of no more than 1 100 t for the quota year 2013/2014.

2.12. Lemon sole

In 2012, 1 600 t of lemon sole (*Microstomus kitt*) were landed. Survey indices of the fishable stock were high in 2003–2010, somewhat lower in 2011 and 2012, but again high in 2013. Recruitment indices have also been high since the early 2000s. CPUE in the Danish seine fishery off Southwest Iceland has doubled from the period 1993–1998 to the present. Preliminary stock assessment indicates a high current fishing mortality rate. The MRI recommends a TAC of no more than 1 600 t for the quota year 2013/2014.

2.13. Megrim

Megrim (*Lepidorhombus whiffiagonis*) is caught as bycatch in the Danish seine and *Nephrops* fisheries off South Iceland. In 2012, 410 t of megrim were landed. The MRI does not recommend a TAC for the quota year 2013/2014.

2.14. Atlantic wolffish

Landings of Atlantic wolffish (*Anarhichas lupus*) in 2012 were around 10 000 t, the lowest landings since 1985. The index of fishable biomass is close to average but recruitment indices are at a historical low level. According to the stock assessment, the fishable part of the stock has been decreasing since 2006 and further decline is foreseen, as recruitment to the fishable stock will be low in the coming years. MRI recommends setting the TAC as 7 500 t for the quota year 2013/2014, based on F_{max}=0.29. In addition, the MRI recommends a continued closure of the major spawning area off West Iceland during the spawning and incubation season in autumn and winter.

2.15. Spotted wolffish

Landings of spotted wolffish (*Anarhichas minor*) in 2012 were about 1 900 t. The average annual landings were 1 000 t in 1982–1997, but have increased to 2 300 t since 1998. Survey indices of recruitment, total biomass and fishable biomass are all at historical minimum, while the harvest rate is about three times higher than in 1985–1997. The basis of the MRI advice is to reduce the harvest rate to half of what it has been on the average since 2000. The MRI recommends that the TAC for the quota year 2013/2014 should not exceed 900 t.

2.16. Blue ling

In 2012, 4 400 t of blue ling (*Molva dypterygia*) were landed. In past decades, blue ling has mainly been taken as bycatch in the bottom trawl fishery. In 2008–2011, the proportion caught by longliners increased considerably as a result of targeting of blue ling by that fleet. This trend reversed in 2012 and longlines accounted for 58% of landings in 2012 compared to 70% in 2011. Indices from the autumn survey indicated an increase in biomass and recruitment between 2005 and 2009, but indices from 2010 to 2012 indicate a sharp decrease in stock size.

MRI considers the current exploitation level unsustainable and recommends that landings be constrained to no more than 2 400 t in the quota year 2013/2014. The advice is to bring the exploitation level down to similar levels as observed in 2002–2009 when the stock size was increasing. Furthermore, a continued closure of known spawning grounds from 15 February–30 April should be maintained.

2.17. Ling

Landings of ling (*Molva molva*) in 2012 were 11 800 t, having increased steadily since 2001. Survey indices of harvestable biomass have remained high since 2007. In 2012, the exploitation level had decreased and was at a similar level as in 2004–2008, when survey indices were increasing rapidly.

MRI recommends a TAC of no more than 14 000 t in the quota year 2013/2014, including catches of foreign fleets which have been about 1 200 t in recent years. The basis of the advice is to keep exploitation at a similar level as observed in 2004–2008 and in 2011. Exploratory analytical assessment indicates that these catches would result in fishing mortality close to F_{MSY}.

2.18. Tusk

Landings of tusk (*Brosme brosme*) from Icelandic waters were 7 800 t in 2012. Indices of fishable biomass in the spring survey have increased considerably since 2001. However, recruitment indices peaked in 2006 but have decreased since then, and were in 2013 at the lowest observed value. The tusk stock assessment is based on the Gadget model as recommended by ICES.

The MRI recommends that the catches be no more than 6 300 t in the quota year 2013/2014, including catches of foreign fleets. This advice is based on the assumption that $F_{max}=F_{MSY}$=0.24. It is furthermore recommended that the closure of nursery areas off the southeast and south coast is continued.

2.19. Anglerfish

In 2012, about 2 700 t of anglerfish *(Lophius piscatorius)* were landed from Icelandic waters. The catches have been declining annually since 2009 when they reached their maximum of 4 100 t. Recent surveys and CPUE have indicated a large fishable stock, due to very good recruitment in 1998–2007. The 2012 survey indicated a declining trend in fishable biomass, but the survey in 2013 does not show further decline. However, survey indices show poor recruitment for year classes 2008–2012. Due to the decreasing recruitment in the last five years, the fishable stock will decline considerably in the coming years. The MRI recommends 1 500 t as the TAC for the quota year 2013/2014, and an effort should be made to reduce the bycatch of juvenile anglerfish in the trawl fisheries.

2.20. Lumpfish

In 2012, about 6 000 t of female lumpfish *(Cyclopterus lumpus)* were landed in Iceland, just below the annual average landings in 1971–2011 of 6 100 t. Effort and number of licenses have increased in recent years. A decline in the female biomass index, F_{proxy}, and a record low male abundance index indicate the need of a more precautionary management approach.

The basis of the MRI advice is to keep F_{proxy} at or below the long-term average. The advice is given in two stages: in this report an initial advice is based on the 2013 survey biomass index, but the final advice will be given by end of March 2014 based on the 2013 and 2014 survey biomass indices. If the survey biomass index does not change much, the final advice is around 3 times the initial advice.

MRI recommends an initial TAC of 970 t for the 2013/2014 quota year, or approximately 2 000 barrels. MRI will recommend a final TAC after the 2014 spring survey. Furthermore, it is recommended that data collection and monitoring of the male fishery and lumpfish bycatch in other fisheries be improved.

2.21. Herring

Landings of **Icelandic summer-spawning herring** (*Clupea harengus*) during the fishing season 2012/2013 amounted to 72 000 t. The prevalence of the *Ichthyophonus* infection is still high in the stock but current analysis indicates that mortality because of the infection is less than has been assumed and took place mainly in the first two years 2009–2010. These results were incorporated in this year's assessment and stock prognosis, and the estimates of herring that died in the mass mortalities in Kolgrafafjörður in the winter 2012/2013. The spawning stock is estimated as 495 000 t in the beginning of the 2013/2014 fishing season. The MRI recommends a TAC for 2013/2014 of 87 000 t based on $F_{0.1}$=0.22 .

In 2012, around 121 000 t of **Norwegian spring-spawning herring** were landed by Icelandic vessels, with estimated total international landings of 833 000 t. ICES has recommended a TAC of 619 000 t for 2013, corresponding to a weighted F=0.125. According to the international agreement reached in January 2007, Iceland will have a quota of 90 000 t in 2013. ICES will recommend a TAC for 2014 in autumn 2013.

2.22. Capelin

Following an assessment of the capelin stock in October 2012 a preliminary catch quota of 300 000 t was allocated. In the beginning of February a final TAC of 570 000 t was set for the fishing season 2012/2013. It was based on survey results from January/February. The autumn fishery started in November but only 10 000 t were landed in Nov–Dec. The winter fishery started in the beginning of January 2013 and the landings in Jan–Mar were 541 000 t. The total international landings in the 2012/2013 fishing season were 551 000 t, of which Icelandic vessels landed 463 000 t.

The fishing season 2013/2014 will be based on the year classes from 2011 and 2010. The indices of immature capelin in the annual autumn survey 2012 were very low and do not provide a basis for an initial quota for the fishing season 2013/2014. Therefore, in accordance with the HCR, MRI advices that the fishery is not opened until further acoustic surveys have confirmed sufficient abundance of these cohorts to sustain a fishery with the usual prerequisite of a target remaining spawning stock of 400 000 t in spring 2014.

2.23. Blue whiting

International landings of blue whiting (*Micromesistiius poutassou*) in the Northeast Atlantic in 2012 are estimated around 390 000 t. Icelandic landings were 63 000 t.

The analytical assessment in 2011 indicates a decrease in the spawning stock of about 60% between 2003 and 2011 but is estimated to have increased from 2.8 million t in 2011 to 3.8 million t in 2012 with improved recruitment in 2010 and 2011. ICES recommends a catch quota not exceeding 643 000 t in 2013. ICES will release its advice for 2014 in October 2013.

2.24. Mackerel

International landings of mackerel (*Scomber scombrus*) in the Northeast Atlantic in 2012 are estimated at 930 000 t. Since the mid 2000s mackerel has been observed in the Icelandic EEZ in increasing numbers. This has led to a direct fishery since 2007. In 2012 the Icelandic landings were 149 000 t. The spawning stock increased from 1.7 million t in 2003 to 3.1 million t in 2009. Since then it has decreased and is estimated to be nearly 2.6 million t in 2013. ICES recommended a catch quota of 497 to

542 000 t in 2013 and will assess the stock in the autumn 2013 and release its advice in October for 2014.

2.25. Pearlside

Experimental pelagic trawl fishery for pearlside (*Maurolicus muelleri*) started in 2008 and the landings peaked in 2009 at around 46 000 t. Since then, the landings have decreased and only 9 tonnes were landed in 2012. Very little is known about the biology and stock size of the pearlside and its position in the ecosystem. The MRI recommends that the catch should not exceed 30 000 t in the quota year 2013/2014.

2.26. Greater silver smelt

In 2012 about 9 300 t of greater silver smelt (*Argentina silus*) were landed compared to the historical maximum of 16 400 t in 2010.

The stock is assessed with limited data and must therefore be harvested with caution. The MRI recommends a precautionary TAC of 8 000 t for the quota year 2013/2014. The basis of the advice is the index of fishable biomass from the Autumn survey and preliminary results of the Gadget model. MRI further reiterates last year's advice that the precautionary approach be adopted in the management of the greater silver smelt fishery in order to ensure sustainability of the resource.

2.27. Nephrops

In 2012, 1 914 t of *Nephrops norvegicus* were landed, compared to 2 240 t in 2011. The survey biomass index has decreased since 2008 and is now under the long-term average. CPUE (kg/hour, single rigged) was 63 kg in 2012, compared to 71 and 76 kg in 2011 and 2010, respectively. According to the current assessment, the fishable stock biomass age 6 and older in 2012 is estimated 10 500 t. The stock biomass increased during the last decade from low values around 1995. This increase was considered the combined result of large year classes and a sustainable Fopt management strategy. However, new year classes are measured small and the fishable stock has decreased. MRI recommends a TAC of no more than 1 750 t in the quota year 2013/2014.

2.28. Northern shrimp

In the quota year 2012/2013, fishery for inshore northern shrimp (*Pandalus borealis*) was open in the Snæfellsnes area, Eldey, Arnarfjörður, Ísafjarðardjúp and Skjálfandi. MRI recommends a preliminary TAC of 950 t for the Snæfellsnes area in the quota year 2013/2014, but will recommend TACs for other inshore areas on the basis of stock assessment surveys in autumn 2013.

In 2012, the offshore catch of northern shrimp was 7 339 t, compared to its highest level of 65 000 t between 1995 and 1997. MRI recommends a TAC of 5 000 t for northern shrimp in the offshore areas (excluding the Dohrn Bank area) for the quota year 2013/2014.

2.29. Iceland scallop

The Iceland scallop (*Chlamys islandica*) fishery remained closed during the 2012/2013 fishing season. Survey indices declined drastically between 2001–2008, to a historical minimum. The downward trend in stock abundance is mainly due to increased natural mortality, probably caused by protozoan infestation in adult scallops. Recruitment has been poor and only one detectable year class in the period 2004–2010. MRI therefore recommends a continued closure of the scallop fishery in the quota year 2013/2014.

2.30. Ocean quahog

In 2012 only 16 t of ocean quahog was landed, compared to the maximum of 14 400 t in 2003. Since 1987 a fishery for human consumption has been developing, but annual landings have been variable due to variable effort related to the market. MRI recommends a harvest rate of 2.5% of the estimated stock size corresponding to no more than 31 500 t in the quota year 2013/2014.

2.31. Common whelk

Pot fishing for common whelk (*Buccinum undatum*) started in Breiðafjörður in 1996. In 2012 the total catch amounted to 375 t, compared to 512 t in 2011. According to a survey conducted in 2012, 15 years of fishing has had a negligible effect on the abundance index. MRI recommends a TAC not exceeding 750 t in Breiðafjörður.

2.32. Sea cucumber

In 2012 about 1 400 t of sea cucumber (*Cucumaria frondosa*) were landed. Since 2003 a fishery for human consumption has been developing, but annual landings were minimal until 2008. A maximum of nine fishing licenses are issued in this fishery, three within each of the three defined areas off Iceland. MRI recommends a harvest rate of 10% of the estimated stock size in each surveyed sub-area.

2.33. Sea urchin

In 2012, 135 t of sea urchin (*Strongylocentrotus droebachiensis*) were landed. Harvesting of sea urchin started in 1993 and total landings reached a maximum of 1 500 t in 1994, but declined rapidly and were negligible 1997–2006. Since 2007 the catches have been between 125 and 145 t. Areas with good quality sea urchins are limited in size, which requires a precautionary management approach.

2.34. Whales

In 1986, the International Whaling Commission's (IWC) resolution on a temporary closure of commercial whaling came into effect. In 2006, Iceland resumed commercial whaling on fin whales (*Balaenoptera physalus*) and common minke whales

(*Balaenoptera acutorostrata).* In 2012, 52 minke whales were caught, compared with 58 in 2011. No fin whaling was conducted in 2011 and 2012, but 148 fin whales were caught in 2010.

The common minke whale stock around Iceland (the Central North Atlantic stock) is considered to be in a healthy condition, and historic catches are not thought to have affected the stock appreciably. Decreased abundance in Icelandic coastal waters in recent years most probably reflects shift in distribution within the stock area.

Based on stock assessments conducted by the Scientific Committees of NAMMCO and the IWC, the MRI recommends that annual catches of common minke whales from the Central North Atlantic stock do not exceed 229 animals in the Icelandic continental shelf area (CIC) and 121 animals in the Jan Mayen area (CM). This advice applies for the calendar years 2014 and 2015.

Results from a fin whale sightings survey in 2007 indicate a total population size of 20 600 animals in the East Greenland/Iceland/Jan Mayen area (EGI), which is similar to the 1995 and 2001 surveys.

On the basis of a recent assessment conducted within the Scientific Committees of the IWC and NAMMCO, the MRI recommends annual catches of up to 154 fin whales as sustainable and precautionary for the calendar years 2014 and 2015.

2.35. Seals

In 2012, the reported seal catch and bycatch in Iceland was 204 grey seals (*Halichoerus grypus*), 251 harbour seals (*Phoca vitulina*), 6 harp seals (*Phoca groenlandica*), and 171 seals of unidentified species.

A **grey seal** survey was conducted in 2012, where 4 200 animals were estimated along the Icelandic coast. The stock was estimated as 12 000 animals in 1990. The adopted management plan is to maintain the harbour seal population around 12 000 animals.

According to a survey conducted in 2011, the stock of **harbour seals** was around 11 000 animals. The stock was estimated as 34 000 seals in 1980 but has remained stable since 2003. The adopted management plan is to maintain the grey seal population around 4 100 animals.

5. VIÐAUKAR *Appendices*

5.1. Methods for estimation of stock size of fish populations

As has been discussed in previous reports about the status of fished stocks and catch recommendations one of the main results of the working group who reviewed the data and stock assessment methods for cod in Icelandic waters in 2000 was that each year a variety of methods should be used in stock assessment, preferably by external experts. Results from the different methods would then be compared. There was no guideline set in the beginning to describe how the final method would be chosen, but it was decided that it would be better to hold to methods that produced results near the middle of the range of likely results. Thus, all methods used in analysis are part of the basis of the final outcome. The choice of a final estimate could even be based on data that are not used in the stock assessment model, for instance information from logbooks from fishing vessels.

In the estimation of stock size and analysis of survey results various models are used. Most of them are based on commercial and survey catch at age. The difference is often whether or not the model considers the skew in age disaggregated landings or not, whether attempts are made to estimate catchability of surveys or fleets, whether they calculate forward or backward in time, how models weight various data and what age groupings the models use. Most often such age-structured models are divided into two classes:

1. Models that calculate backward in time and do not account observation error in the commercial catch at age. This kind of model (VPA) has for many years been used to estimate a great many stocks in the North Atlantic.
2. Models that calculate forward in time and do not follow the catch at age exactly, rather they minimize the objective function which is a measurement of consistency between data (commercial and survey catch at age) and predictions of the model that are based on the data. This kind of model is efficient in projections and usually gives more information about observation error in the data than does the VPA model. Often this model is considered a statistical catch-at-age model.

The main models that the Marine Research Institute (MRI) used in estimation of fish stocks in 2013 are:

1. 1. ADAPT. Assessment method based on VPA. Both in-house programs and a version developed in Canada are used and it is possible to add to this an estimation of confidence limits and more that is usually not included in methods based on VPA.
2. 2. Time Series Analysis. A method developed by mathematician Guðmundur Guðmundsson. This method has been used for the Iceland saithe and cod stocks for many years, in addition to herring, haddock, and redfish in recent years. It has also been used in other regions than Iceland. The model is classified as a statistical catch-at-age model but it is not suitable for calculating forward in time in the present version.
3. 3. EXCAM. A statistical catch-at-age model developed by the MRI. This model returns stock estimates, recruitment estimates and projections.
4. 4. ADCAM. Statistical catch-at-age model developed by the MRI to examine harvest rules. The model can be used for stock assessments, recruitment estimates and projections.
5. 5. Gadget (BORMICON). A multispecies model that was originally developed by the MRI and has been in continuous development under a research grant from the European Union in recent years in cooperation with the larger marine research institutions in Europe. In this model both length and age of the fish are taken into account, which is helpful in examining the effect of size dependent predation on mean weight at age, estimate growth, migrations, cannibalism and more; but it also works well in estimating population size when there is little or no age data but a good deal of length measurements. In the model the catch at age is not used directly rather the length and age measurements from fishing are part of the objective function which is minimized.

So, there are many varied models that are used. When there is a choice to be made about which model to use as a basis for stock assessment there is consideration of aspects such as if there has been much discussion of a particular model in the literature and whether the discussion is positive. When so many models are calculated there is also the question of where the results of a particular one lie in relation to the others. If there is a significant difference between models, the ones whose results lie on the outer edges of the range of results is only used when there is a very strong argument for doing so.

Above, it is made clear that many of the available models return estimates of uncertainty, both in stock estimates and projections. Usually this uncertainty is underestimated because not all factors are taken into account, such as variation in natural mortality, variable growth rates or wrong assumptions. Recently, a strong emphasis has been placed on review of these extra uncertainty factors, but this effort is still in its infancy. In estimation of unknown

quantities improved understanding can be gained by understanding the uncertainty in the data and while uncertainty in age-structured models seems most often underestimated that estimation can often be used in comparison of methods of analysis.

In many cases, traditional assessment methods like those listed above are not possible. In such situations, changes in harvest rate can be approximated with the use of Fproxy. To calculate Fproxy the ratio between total landings and biomass indices is examined. If the ratio between these two remains unchanged from one year to another it is an indication that the fishing mortality has not changed between years. The main assumption behind calculations of Fproxy is that the biomass index is descriptive of the stock size of the given species.

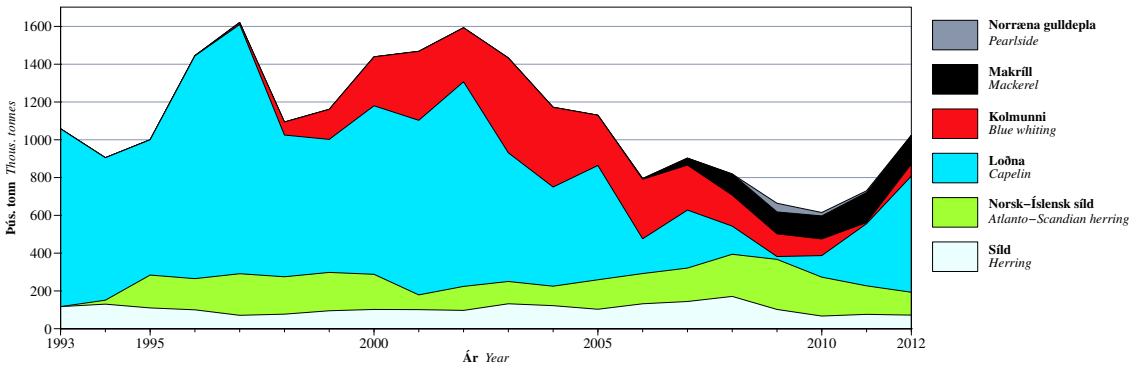
5.2. Fishing and dispersal of landings in Icelandic waters in 2012

The Icelandic fishing fleet is very diverse, with everything from little one-man fishing boats to huge factory ships with dozens of crew. Nearly 1 700 vessels fished in Icelandic waters in 2012 and they landed in all 1.5 million tonnes of fish, which is 330 thousand tonnes more than in 2011. Of this total, about one million tonnes were pelagic fish (capelin, herring, blue whiting, mackerel and pearlside) which is 320 thousand tonnes more than in 2011 (figure 5.2.1).

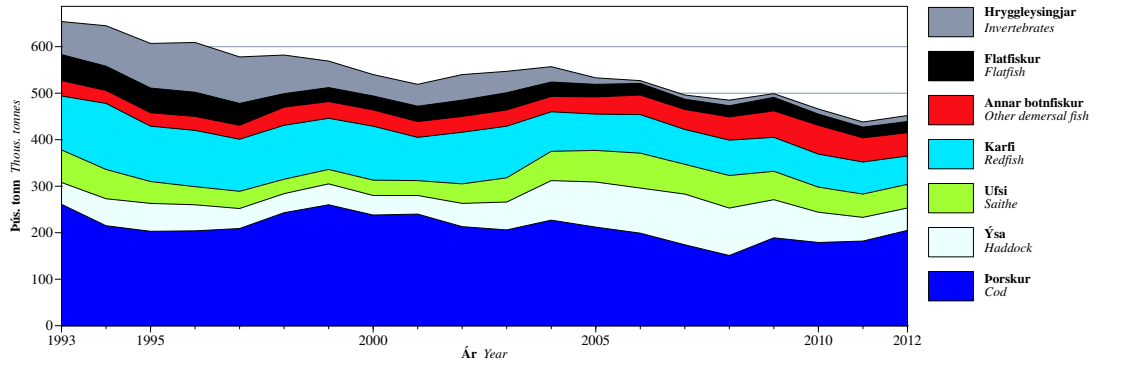
There are many different gears used, but a few account for the majority of landings. In fishing of groundfish the main gears are: bottom trawl, longline, handline, gillnets and Danish seine. For pelagic fishing the most common gears are seine and pelagic trawl and for pelagic redfish only the pelagic trawl is used. Figures 5.2.3–5.2.5 show the distribution of landings of cod, haddock and saithe by gear for 2011 along with length distribution of catches from the same gears. Furthermore, the total landings from each gear are shown as it has been recorded in landing reports. Figure 5.2.6 shows the effort of Icelandic fishing vessels in Icelandic waters with various fishing gears.

In figure 5.2.3 shows that fishing grounds for cod are vary based on what gear is used. Longline and handline are mostly used in coastal areas and inshore fishing but bottom trawls are used offshore. Furthermore, the length distribution of cod is different according to the gear used. The largest cod are caught in gillnets while the smallest cod are caught by longline and handline. Bottom trawl catches tend to be larger fish than longline and handline.

The fishing fleet has changed a lot in recent decades because of technological advancements and vessel renewals so it is difficult to analyse changes in landings over long periods. For this reason, the

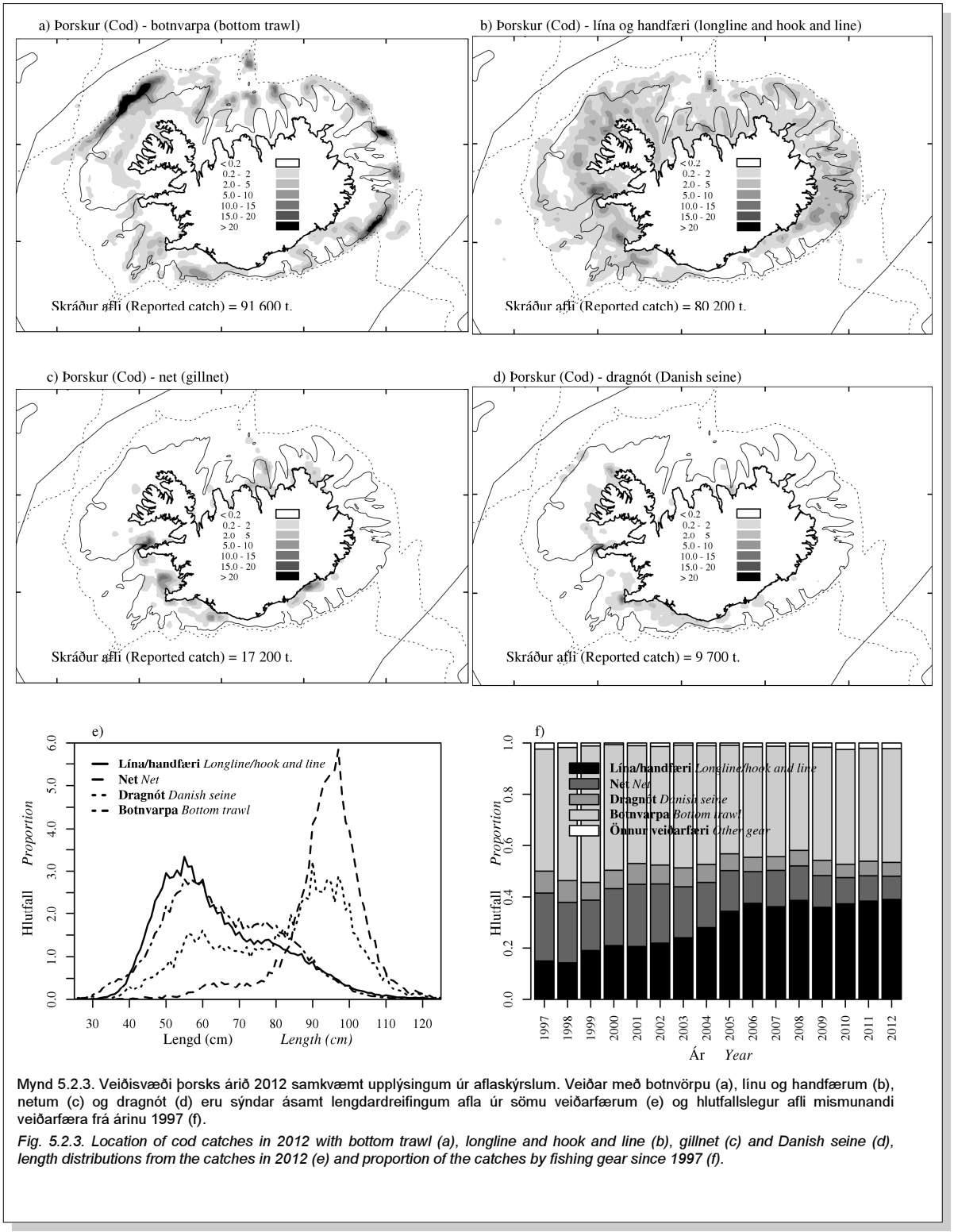


Mynd 5.2.1. Heildarafli íslenska fiskveiðiflotans 1993–2012 skipt eftir helstu tegundum og tegundahópum botnfisks og hryggleysingja.
Fig. 5.2.1. Total landings of the Icelandic fisheries 1993–2012 divided by main taxinomic groups of demersal fishes and invertebrates.



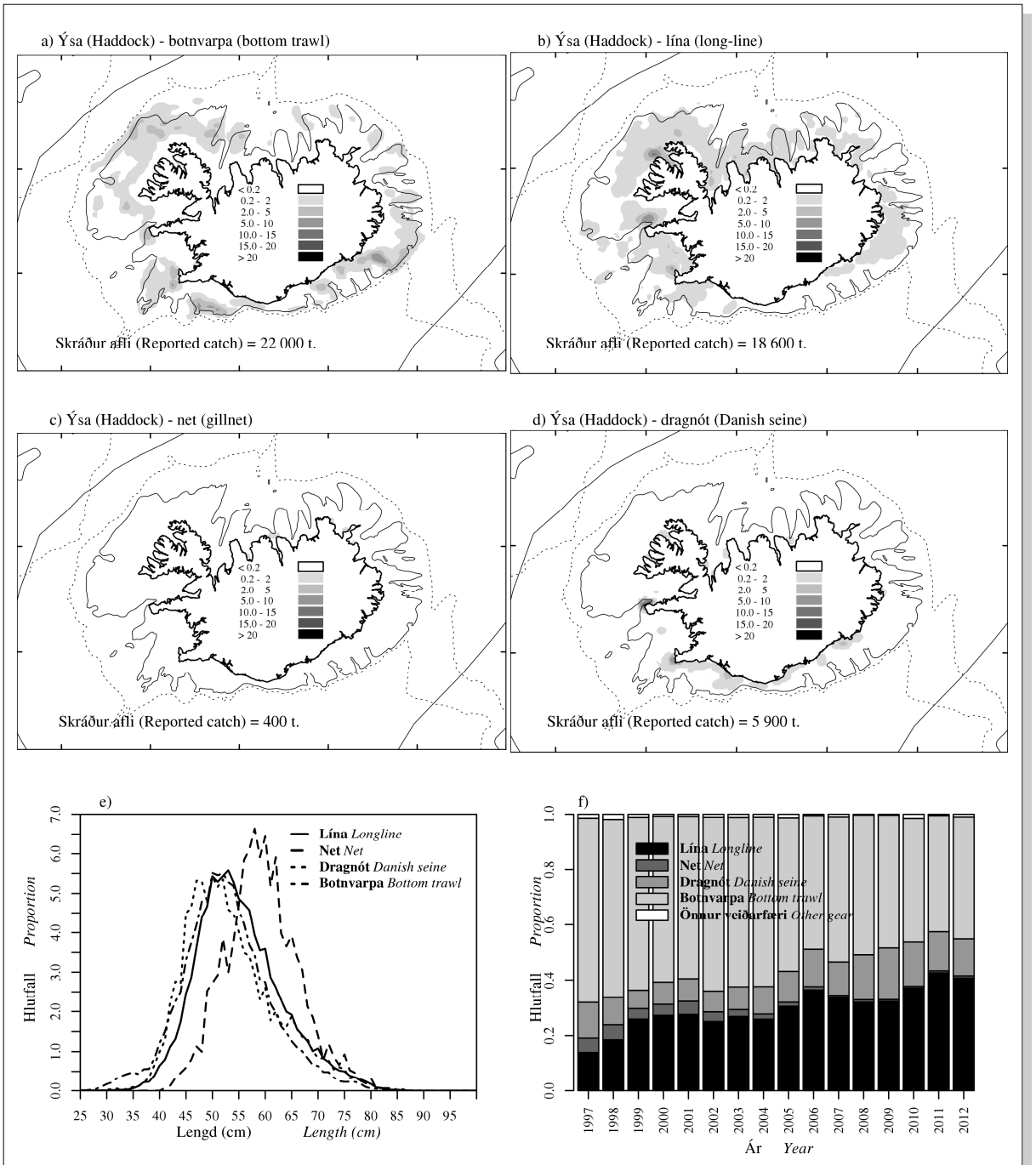
Mynd 5.2.2. Heildarafli íslenska fiskveiðiflotans 1993–2012 skipt eftir helstu tegundum uppsjávarfisks.
Fig. 5.2.2. Total landings of the Icelandic fisheries 1993–2012 divided by main species of pelagic fishes.

importance of landing reports in stock assessments decreased in recent years and the importance of stock surveys has increased. However, landing reports are always taken into account and if there is inconsistency between stock assessments and catch data landing reports help to explain the discrepancy.



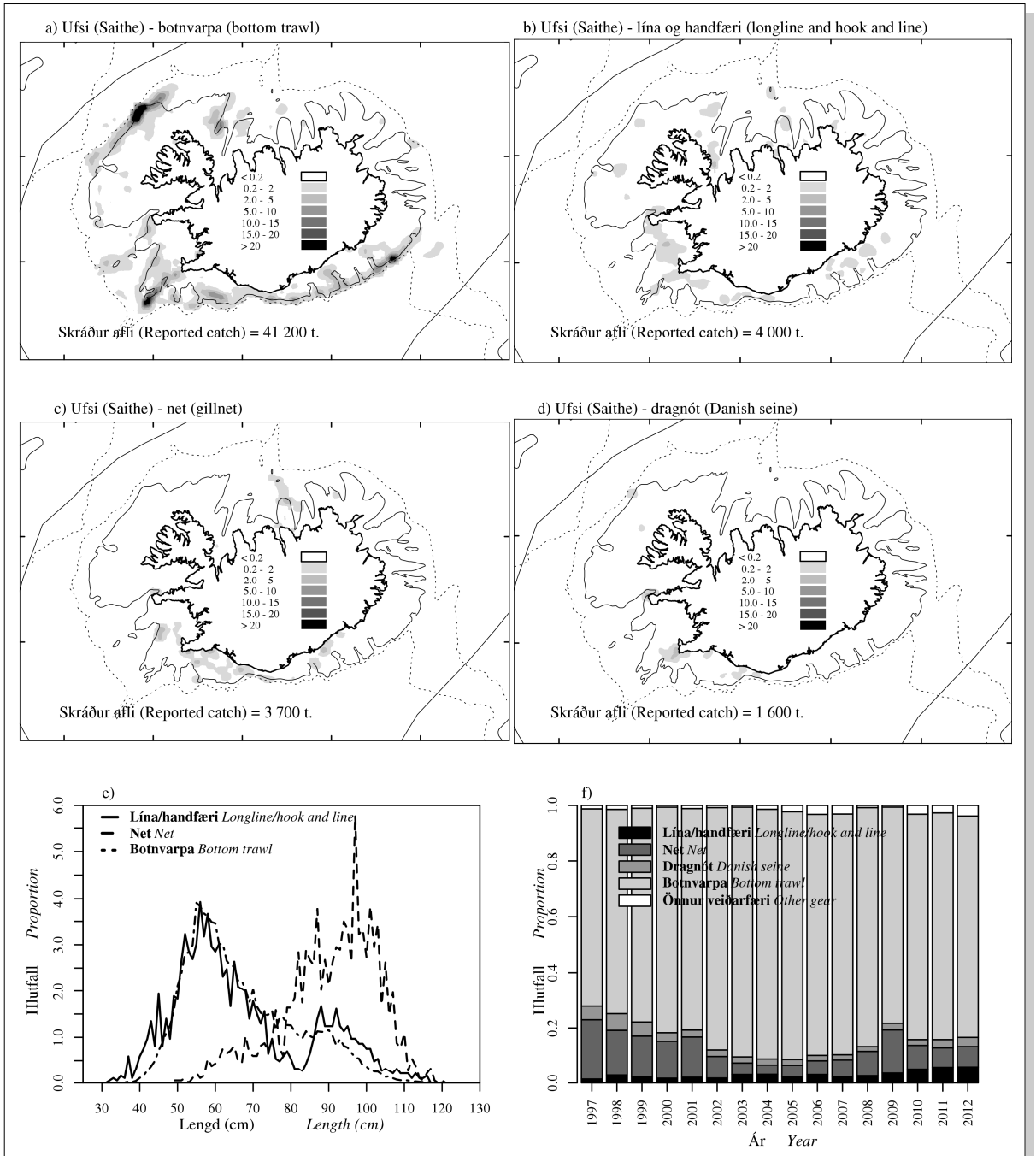
Mynd 5.2.3. Veiðisvæði þorsks árið 2012 samkvæmt upplýsingum úr aflaskýrslum. Veiðar með botnvörpu (a), línu og handfærum (b), netum (c) og dragnót (d) eru sýndar ásamt lengdardreifingum afla úr sömu veiðarfærum (e) og hlutfallslegur afli mismunandi veiðarfæra frá árinu 1997 (f).

Fig. 5.2.3. Location of cod catches in 2012 with bottom trawl (a), longline and hook and line (b), gillnet (c) and Danish seine (d), length distributions from the catches in 2012 (e) and proportion of the catches by fishing gear since 1997 (f).



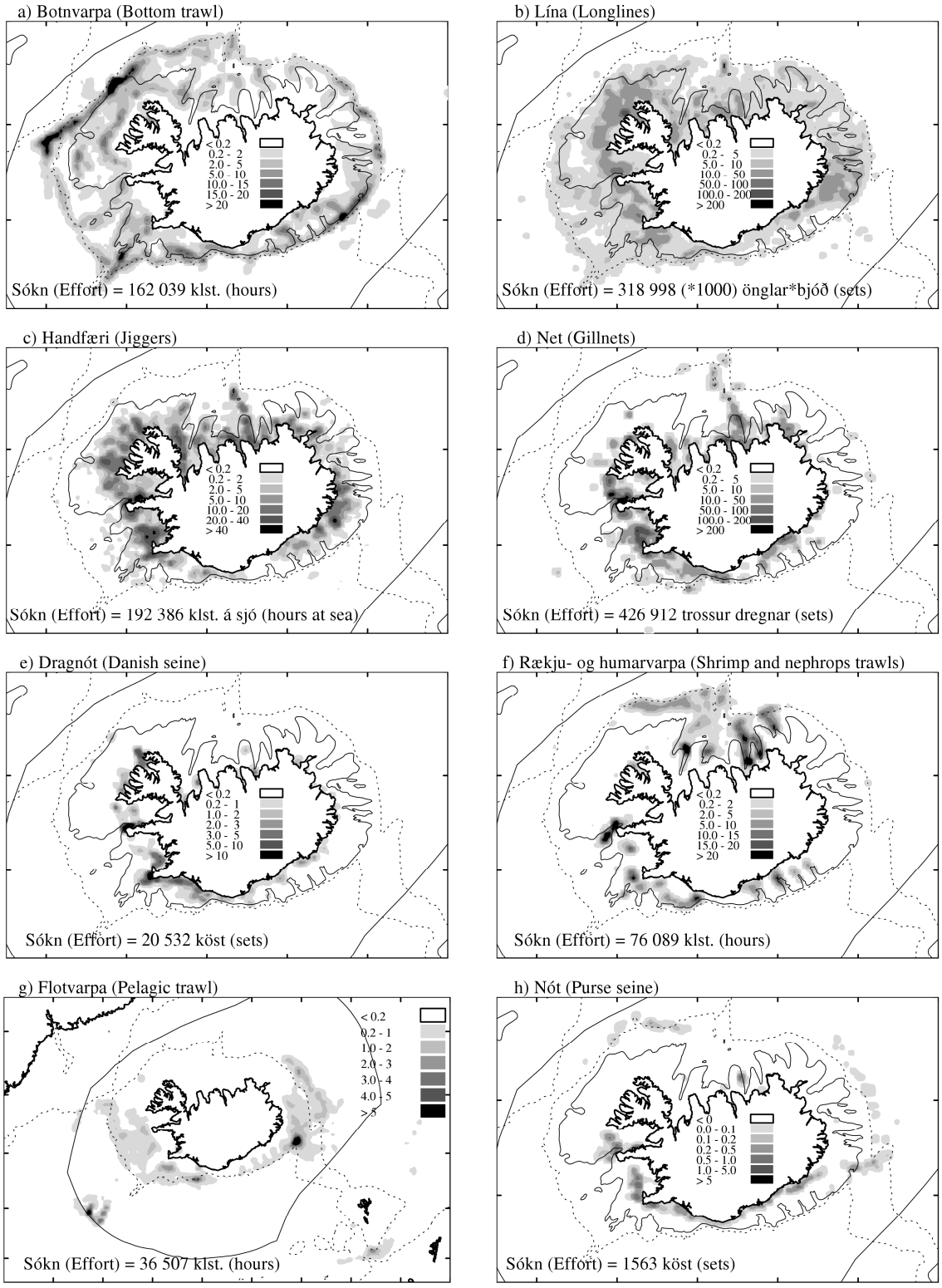
Mynd 5.2.4. Veiðisvæði ýsu árið 2012 samkvæmt upplýsingum úr aflaskýrslum. Veiðar með botnvörpu (a), línu og handfærum (b), netum (c) og dragnót (d) eru sýndar ásamt lengdardreifingum afla úr sömu veiðarfærum (e) og hlutfallslegur afli mismunandi veiðarfæra frá árinu 1997 (f).

Fig. 5.2.4. Location of haddock catches of in 2012 with bottom trawl (a), longline (b), gillnet (c) and Danish seine (d), length distributions from the catches in 2012 (e) and proportion of the catches by fishing gear since 1997(f).



Mynd 5.2.5. Veiðisvæði ufsa árið 2012 samkvæmt upplýsingum úr aflaskýrslum. Veiðar með botnvörpu (a), línu og handfærum (b), netum (c) og dragnót (d) eru sýndar ásamt lengdardreifingum afla úr sömu veiðarfærum (e) og hlutfallslegur afli mismunandi veiðarfæra frá árinu 1997 (f).

Fig. 5.2.5. Location of saithe catches in 2012 with bottom trawl (a), longline and hook and line (b), gillnet (c) and Danish seine (d), length distributions from the catches in 2012 (e) and proportion of the catches by fishing gear since 1997 (f).



Mynd 5.2.6. Sókn íslenskra fiskiskipa á Íslandsmiðum árið 2012 sem nota botnvörpu (a, klst. veitt), línu (b, önglar), handfæri (c, klst. á sjó), net (d, trossur dregnar), dragnót (e, fjöldi kasta), rækju- og humarvörpur (f, klst. veitt) flotvörpu (g, klst. veitt), og nót (h, fjöldi kasta).

Fig. 5.2.6. Effort of the Icelandic fishing fleet in Icelandic waters using bottom trawl (a, hours fished), longline (b, hooks), jiggers (c, hours at sea), gillnet (d, number of sets), Danish seine (e, number of sets), shrimp and Nephrops trawls (f, hours fished), pelagic trawl (g, hours fished), and purse seine (h, number of sets) in 2012.

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