

# Seals in Surtsey, the period 1980–2005

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## ABSTRACT

The author has been surveying common and grey seals on the coast of Iceland since 1980 and here are taken together all aerial sightings on Surtsey. The grey seal (*Halichoerus grypus* Fabricius) has established a considerable breeding site on the northern spit of the Surtsey island, which is now one of the biggest rookeries on the southern shores of Iceland, with estimated 63 (95% CI 62 – 66) pups born there in the autumn of year 2005. On the other hand, the common seal (*Phoca vitulina* L.) has not been numerous in Surtsey during its breeding time in the summer. Breeding sites of common seals on the South-Coast of Iceland closest to Surtsey are Ölfusá, Thjórsá, Markarfljót and Kúdafljót. They, however, haul-out in great numbers on the northern shores on Surtsey during the winter, presumably using the island as a resting place after making feeding trips to the adjacent waters.

## INTRODUCTION

The author has been participating in research on sub-tidal marine invertebrates at Surtsey since 1972 (Hauksson 1974 & 1993), and has been surveying common and grey seal numbers on the coast of Iceland since 1980. He published a paper on seals

on Surtsey in year 1992 and presented data on seals there until year 1989 (Hauksson 1992). Most of this data is presented here again for comparison with the newer data, from 1990 to 2005. Fridriksdóttir (1994) made notice on that grey seal breed

Table 1. Observations on seals in Surtsey and vicinity from aerial surveys during the summer, aimed for common seals.

Day	Time of counting	Common seals	Grey seals	Time of midday	Weather	Tide	Time of low tide
11-Aug-1980	14:01	20	1	13:33	Wind force 1–2, cloudy	Spring tide	12:09
22-Jul-1985	14:57	4	3	13:34	NW-breeze, lightly cloudy	Spring tide	15:30
11-Jul-1988	12:18	0	6	13:33	N-4, lightly cloudy	Spring tide	16:11
09-May-1989	17:30	9	0	13:24	S-4, lightly cloudy	-	14:00
12-Aug-1990	16:40	18	0	13:33	S-breeze	Spring tide	15:27
12-Aug-1992	12:53	0	27	13:26	No wind cloudy	Increasing tide	11:17
23-Aug-1995	11:15	6	0	13:30	SV-4, cloudy	Neap tide	11:00
06-Aug-2003	20:57	2	1	13:26	NV-4, lightly cloudy	Neap tide	18:23

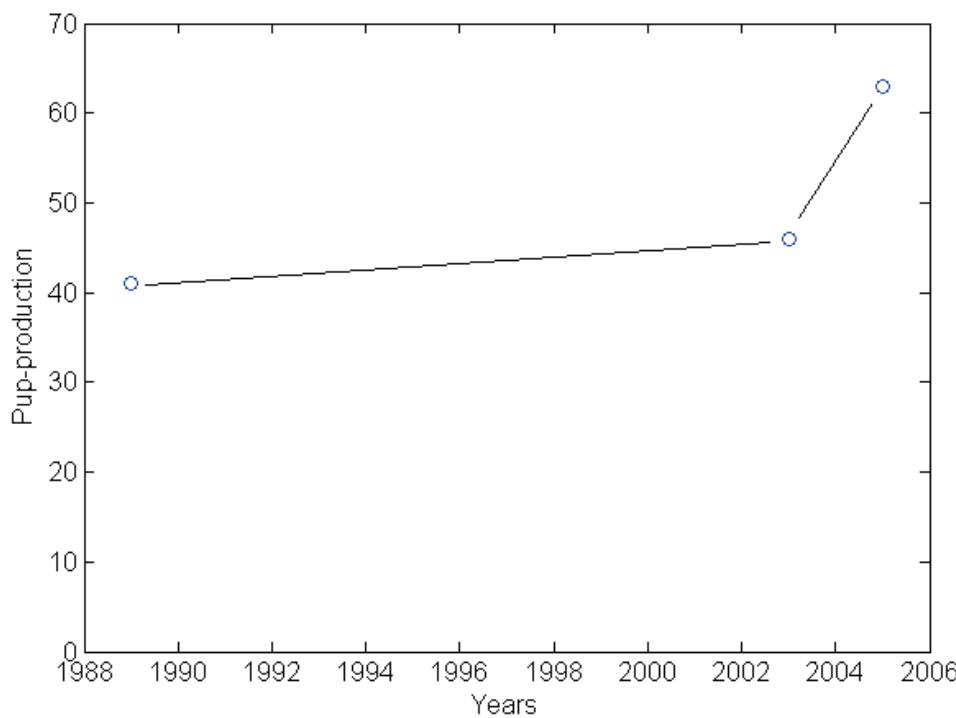


Fig. 1. Total estimated pup-production of the grey seal herd breeding on Surtsey, in years 1989, 2003 and 2005.

regularly on the island but common seals only sporadically.

#### MATERIAL AND METHODS

Here are combined the seal sightings on Surtsey and neighbouring waters from year 1980 to 2005. Further information about the grey seal pups sur-

veys are published in (Hauksson 2007) and the common seal aerial census is described in (Hauksson 2009). Analyses of data and estimation of the grey seal breeding O-give for years 1989 and 2003 is described in (Hauksson 2007), and for year 2005 in (Hauksson unpublished).

Table 2. Observations on grey seals in Surtsey and vicinity from aerial surveys during the autumn, aimed for grey seal pups.

Day	Time	Pups	Adults	Notes
8-okt-1982	15:45	0	0	
19-okt-1986	13:14	34	16	
9-okt-1988	10:30	1	1	
21-nov-1988	11:30	15	11	
25-okt-1989	11:05	3	1	
21-nov-1989	10:55	35	0	
13-des-1989	12:00	73	0	Three white pups, 70 weaned pups
3-nov-1990	11:00	23	0	
2-nov-1992	10:30	35	-	
19-okt-1995	16:10	39	-	
15-okt-1998	-	30	-	Karl Gunnarsson counted on foot (personal comm.)
16-okt-2002	11:36	22	-	
6-nov-2002	12:55	35	-	
10-sep-2003	14:10	3	-	
8-okt-2003	10:12	23	-	
30-okt-2003	11:11	37	-	
21-nov-2003	9:40	8	-	
9-des-2003	16:02	5	-	
24-sep-2005	10:45	10	-	
20-okt-2005	13:00	34	-	
11-nov-2005	10:30	29	-	
25-nov-2005	12:50	66	-	Six white pups, 60 weaned pups

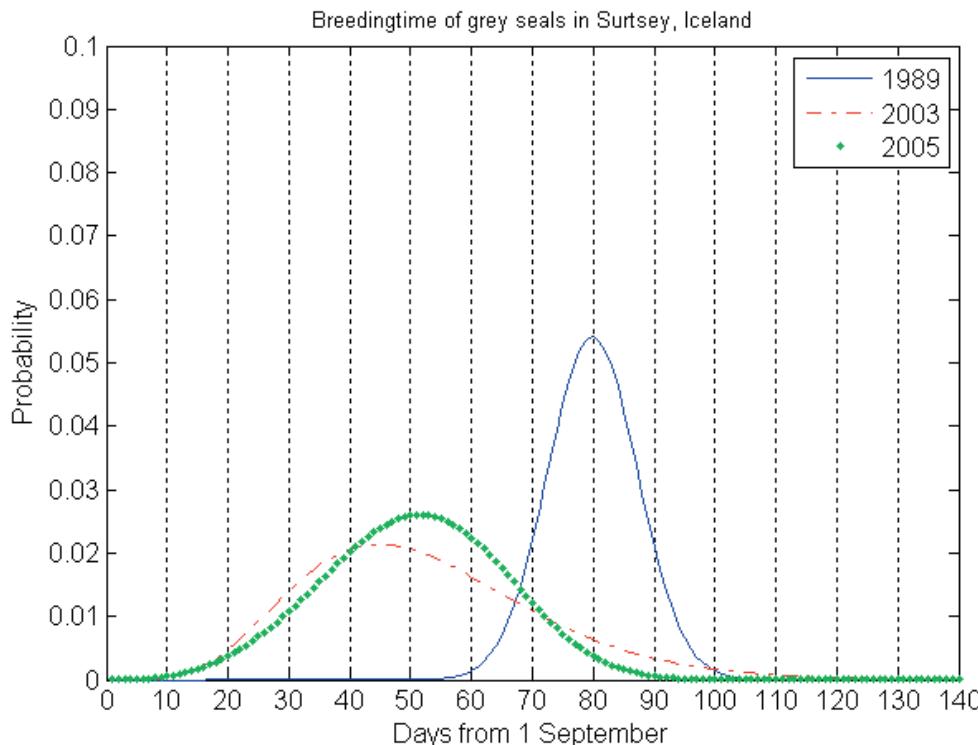


Fig. 2. Grey seal pup birth O-give for the breeding site in Surtsey, the autumn of the years of 1989, 2003 and 2005.

## RESULTS

Only few common seals have ever been observed in Surtsey during August, and hardly any during the autumn months (Table 1).

The first time the author observed grey seals in Surtsey from the air, was in August 1980, and grey seals has been regularly seen there since (Table 1). In 1989 estimated pup-production on the breeding site there was at least 41 pups, in 2003 a total of 46 and in 2005 a total of 63 (95% CI 62–66) pups were born (Fig. 1). The maximum breeding date was the 19 of November, the 15 of October and 24 of October, in year 1989, 2003 and 2005 respectively. A normal, a gamma and a weibull probability distribution curve described the pup data best, in 1989, 2003 and 2005 respectively (Fig. 2).

## DISCUSSION

It is not known why the peak birthing date of grey seals in Surtsey was about month earlier in year 2003 and 2005, compared with year 1989. However, the birthing O-give in 1989 was only based on three non-zero counts, which is the absolute minimum for fitting a normal distribution, so it was not as sound as the O-give in 2003 and 2005, which was based on five and four non-zero counts respectively. But there is evidence for different peak birthing dates in the same rookery in different years in Breidafjord, W-Iceland, but the reason for it is only speculative (Hauksson 2007).

The grey seal has established a sizeable breeding site on the northern spit of Surtsey, which is now

one of the biggest rookeries on the southern shores of Iceland. It is of similar size in 1989 and 2003, but there is an increase in 2005, which implies a 2% annual increase in the study period of 1989–2005. This is in spite of considerable decrease in the Icelandic grey seal population (Hauksson 2007). All hunting is prohibited in Surtsey and only researchers are allowed to visit and stay on the island, so it can truly be said that the grey seal rookery in Surtsey is protected. That may be the reason for the observed increase in pups. In the unprotected rookeries on the South- and West-Coast of Iceland, the grey seals have decreased the most (Hauksson 2007).

The common seals are not numerous in Surtsey during breeding in the summer. Their main breeding sites on the South-Coast of Iceland closest to Surtsey are Ölfusá, Thjórsá, Markarfljót and Kúðafjót (Hauksson 2009). They however haul-out in great numbers there during the wintertime, when feeding. So it seems that Surtsey is not as important for breeding of common seals as it is for the breeding of grey seals. There is also evidence for grey seals driving common seals a way from places they have colonized (Hauksson & Ólafsdóttir 2004; Hauksson et al. 2004).

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