REPORT

on the Marine Biological Survey Around and on Surtsey

by

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Materials and Methods.

For bottom samples the following instruments were used:

Petersen grab
Rectangular dredge
Bobertson bucket dredge
Ring dredge

For collecting zooplankton the following instruments were used:

Hensen net
Icelandic high speed plankton sampler

For collecting the larvae of bottom animals: a small hand-towed plankton net was used.

Investigations, which were started in 1963, have been continued in much the same manner with three surveys of the sea around Surtsey. Observations were again made along the four sections directed east-west and north-south from Surtsey, at $\leq$ 1, 3, 7 and 12 nautical miles respectively off the island. Besides this zooplankton was collected on one or more sections farther west in the Selvogsbanki region.

Surveys of the shore of Surtsey have been made in seven visits to the island.

Observations and Results.

The three surveys of the sea around Surtsey were carried out in March, May and August. The zooplankton was collected at

all the stations of the "Surtsey cross" and also along other sections farther west. In the May survey no zooplankton was collected. The phytoplankton was collected at every second station along "Surtsey cross" and also along the section west of the "Surtsey cross" and next to it. In the May survey, however, the phytoplankton was only collected along the north east and south sections of the "Surtsey cross". The larvae of bottom animals were collected at the stations next to Surtsey at 1 - 6 stations in each survey. The bottom samples were collected according to the tables I-III.

No samples have been worked up yet apart from one sample containing one animal. This has, however, only been identified as far as the genus. The specimen was caught by a rectangular dredge on May 5th-6th, 200 m (0.1 nautical mile) north of Surtsey, at a depth of 70 m. The depth there was 120-130 m before the eruption. The animal is a nudibranch, a Coryphella species.

On May 18th one extra station was worked 0.2 nautical miles south-west of Surtsey, at the depth of 85 m. Here again the depth was 120-130 m before the eruption. The lava brought up by the rectangular dredge carried a colony of some hydrozoa.

On August 9th-10th a remarkable sample was obtained, 0.1 nautical miles west of Surtsey at a depth of 82 m. The sample was obtained by the rectangular and contained mud and quite a few animals in it. The mud sample was analysed by Dr. Sigvaldason, a geochemist. He maintains the mud consists of volcanic material from the eruption which started east of the island on the 23rd of May 1965. It is of interest to note that on November 16th-17th 1964, a bottom sample was obtained by the rectangular dredge 0.2 nautical miles west of Surtsey at a depth of 70 m. This contained new lava and 4 species of animals, Sigurdsson (1965).

The island was visited on the following dates: January 18th, January 31st, March 18th, April 29th, June 6th, July 3rd and August. Animals found were:

1. Pelagic animals which had drifted ashore. Of these, euphausids and amphipods were the most prominent. There were also barnacles on debris and arrowworms. On separate occasions one benthonic fish egg was found, probably from a Cottus species, eggcapsules of a gastropod, a few cephalopods, both decapods and an octopod, and some calanus on driftwood. None of these are of interest as immigrants.
2. Two unidentified microscopical animals, one of which is a nematode. These specimens were found on washing a small piece of rock which was loosened from a creek of a large rock. These animals may very well have drifted ashore like the other macroscopical animals not being confined to the intertidal zone.

No macroscopical living animals which could be living in the sand or on the rocks of the intertidal zone of Surtsey were ever to be found.

On June the 3rd, rocks from Surtsey were transferred to Westman islands and to the mainland. Of the two stones which were planted in a rocky shore at the Westman islands, one had already ulva and newly settled barnacles on it when reviewed one month later. The other rock did not have any inhabitants, but it was situated further down the shore. The chemical constitution of the rock does not seem to account for the absence of barnacles and other animals on the rocky shores of Surtsey.

Participating scientists:

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Reference:

Adalsteinn Sigurdsson (1965): Report on the Marine Biological Survey around and on Surtsey. Surtsey Research Progress Report I.

TABLE I.

The distribution of bottom samples taken on the "Surtsey cross" March 29th-30th.

Direction from Surtsey	Distance from Surtsey. Nautical miles	Depth meters	Bottom samples containing animals	Bottom samples containing nothing or no animals
North	1	105	S	
East	1	125	S	
South	1	126	P	
	1	130	P	
	3	153	H S	
	7	195	H S	
West	1	100	S	
	3	137	S	P

	denotation
Petersen grab	P
Rectangular dredge	S
Robertson bucket dredge	F S
Ring dredge	H S

TABLE II.

The distribution of bottom samples taken on the "Surtsey cross" May 5th-18th.

Direction from Surtsey	Distance from Surtsey. Nautical miles	Depth meters	Bottom samples containing animals	Bottom samples containing nothing or no animals
North	0.1	75	S	P
	3	103		P
	7	87		P
	12	80		P
East	0.2	120		S
	1	127	S	
	3	95		S
	7	135		S
South	1	115	S	
	3	135-132	2 P and HS	
	7	158-185	2 HS	
South-West	0.2	85	S	
West	1	100	S	
	3	130	S	2 P
	7	135	P and K	
	12	158-160	HS and K	

Denotation the same as in table I.

TABLE III.

The distribution of bottom samples taken on the "Surtsey cross" August 9th-10th.

Direction from Surtsey	Distance from Surtsey. Nautical miles	Depth meters	Bottom samples containing animals	Bottom samples containing nothing or no animals
North	1	82		S
South	0.2-0.3	82	S	
	1	?	S	
	7	186	FS	
West	0.1	82	S	
	1	115	FS	
	3	128	FS	

Denotation the same as in table I.