

**Cruise report**  
**Sand eel survey 2019**

**Arctic Hunter**  
and  
**M/S Reykjanes**

**North Sea/Skagerrak – Sand eel area 1r, 2r & 3r**  
Including the extended area

**Cruise:** 1/2019

**Vessel:** Arctic Hunter

**Area:** Nordsøen, sand eel area 1r & 2r

**Departure:** Esbjerg      **Date:** 21.11.2019

**Arrival:** Esbjerg      **Date:** 5.12.2019

**Vessel:** M/S Reykjanes

**Area:** Nordsøen, sand eel area 1r & 3r

**Departure:** Esbjerg      **Date:** 21.11.2019

**Arrival:** Esbjerg      **Date:** 3.12.2019

**Project number:** 39064 - 19

## Participants (scientific)

**Lonny Hedvig:**

Cruise leader: Dirk Cornelis Tijssen      Danmarks Tekniske Universitet, Institut for Monitoring og Data (DTU Aqua)      21/11 – 5/12 2019

Consultant: Jean Vad Christensen      FOGA Aps, Esbjerg      21/11 – 5/12 2019

**Reykjanes:**

Cruise leader: Jan Thomsen      Danmarks Tekniske Universitet, Institut for Monitoring og Data (DTU Aqua)      21/11 – 3/12 2019

Assistant: Flemming Thaarup      Danmarks Tekniske Universitet, Institut for Monitoring og Data (DTU Aqua)      21/11 – x/11 2019

## Objectives

The purpose of the sand eel dredge survey is to collect sand eels buried in the seabed and compare catches (number and age composition) with the previous year's collections to assess the 2019 year class strength of sand eel in area 1r, 2r and 3r of the different areas adopted by ICES in 2016 (figure 1). Data from the dredge survey is the basis for calculating an index, which is used in the stock assessment for sand eel in the North Sea.

## Achievements

Types of data collected

- Dredge (sand eels; species, weight, length)
- Van Veen grab (sediment samples; grain size composition)

### Arctic Hunter:

- 14 days at sea
- 181 stations, 4 sediment grab samples and 177 dredge hauls distributed over 59 sample positions.

### Reykjanes:

- 12 days at sea
- 163 stations, 18 sediment grab samples and 145 dredge hauls distributed over 49 sample positions.

## Sampling method and strategy

Due to the extension of the survey area compared to 2016, two vessels participated in the survey: Arctic Hunter and Reykjanes. Reykjanes worked on sand eel area 3r and the northern part of eel area 2r (i.e. the North Sea and the major part of Skagerrak). Arctic Hunter carried out the remaining stations (i.e. the central and southern part of the North Sea).

### Number of samples per position

- At all positions, where samples are taken, three stations are carried out in a "star" formation using the dredge. Furthermore, one sediment sample is taken using Van Veen sampler (0.2m<sup>2</sup>).

### Time of the day for sampling

Sampling using the dredge is carried out during night time (i.e. 15 min after sunset to 15 min before sunrise). There is no time restriction on sediment samples.

## Working up of samples on board

For more detailed description of the working-up procedure, see the cruise program.

### Catch from dredge

The catch of the sand eel species is sorted (Lesser sand eel (*Ammodytes marinus* and *Ammodytes tobianus*) are pooled). The weight and the length distribution of the lesser sand eel are recorded. Sub-samples are frozen for split into the two species and age reading later in the laboratory. Each drag is worked up separately.

### Sediment samples (Van Veen grab)

The content of the sediment samples are later on analyzed for grain size distribution in the lab.

## Results

In total where 322 stations fished using the dredges distributed on 108 positions. Furthermore, 22 sediment samples were obtained (Table 1). The winch on board Arctic Hunter assigned to operate the van Veen bottom sampler was not able to retrieve the gear with sufficient speed in order to obtain the sample correctly. Shifting to another winch turned out not to be realistic. For that reason the planned sampling of sediment was canceled. All stations carried out during the survey is listed in Table 2.

Table 1 Samples obtained during the Sand eels survey.

Count of station	Column Labels				Grand Total
	<input type="checkbox"/> Arctic Hunter	<input type="checkbox"/> Reykjanes			
Row Labels	1r	2r	2r	3r	
Dredge sample	156	21	79	66	322
Sediment sample	4		8	10	22
<b>Grand Total</b>	<b>160</b>	<b>21</b>	<b>87</b>	<b>76</b>	<b>344</b>

### Compare of achieved number of hauls to planned number of hauls

In total 128 positions were listed to be sampled potentially. Each position is suppose to be fished three times (star formation). If all stations were fished, this should result in a total of 384 dredge stations. Of the total positions, 93 positions have high priority and 35 have low priority. In 2019 a total of 108 positions were sampled resulting in 322 dredge stations (two dredge stations were skipped due to zero-catch on the first two hauls on the position). All high priority positions were fished. 15 positions of low priority were fished.

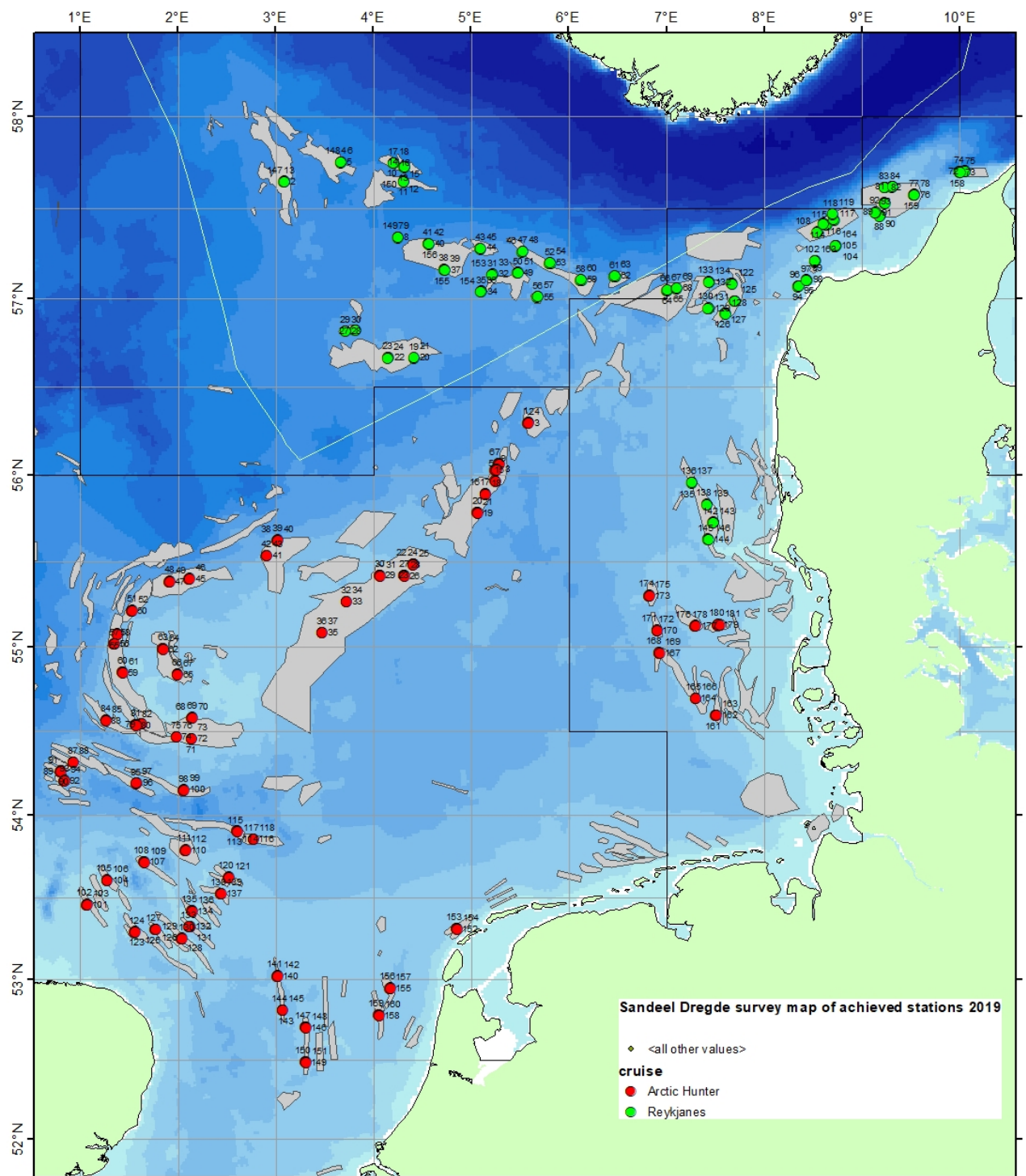


Figure 1 Realized stations in sand eel area 1r, 2r and 3r for the November/December cruise 2019 (Arctic Hunter (red) and Reykjanes (green)).





