# RV BELGICA CRUISE 2018/19AB – CRUISE REPORT



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**Fishery: 27/08/2018 – 07/09/2018**

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## 1. CRUISE DETAILS

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| 1. | Cruise number | 2018/19ab |
| 2. | Date/time | Zeebrugge TD: 27/08/2018 at 12h00<br>Ipswich TA: 31/08/2018 at 15h45<br>Ipswich TD : 03/09/2018 at 04h00<br>Zeebrugge TA : 07/09/2018 at 09h00 |
| 3. | Chief Scientist<br><br>Participating institutes | MSc. Ir. Loes Vandecasteele<br><br>ILVO |
| 4. | Area of interest | Central and Southern North Sea (IVb & IVc) |

## 2. LIST OF PARTICIPANTS

| **INSTITUTE** | **NAME** | **Week 1 (27/08 - 31/07/18)** | **Week 2 (03/09 - 07/09/18)** |
|---|---|---|---|
| **ILVO** | Loes Vandecasteele (chief scientist) | X | X |
| | Lies Vansteenbrugge (2nd chief scientist) | X | |
| | Noémi Van Bogaert | X | X |
| | Patrick Calebout | X | X |
| | Jürgen Bossaert | X | X |
| | Glenn Kyndt | X | X |
| | Benedict Deputter | X | X |
| | Coenraad Deputter | X | X |
| | David Vuylsteke | X | X |
| | Katrien Verlé | | X |
| | Nicolas Arrostuto | X | X |
| Total number of participants | | 10 | 10 |

## 3. SCIENTIFIC OBJECTIVES

**a) ILVO – NSBTS**

Indices of abundance and biomass of adult flatfishes (traditionally mainly plaice and sole, but increasingly important are also dab, flounder, lemon sole, turbot, brill, …) will be calculated by means of stratified tows in the southern and central North Sea. The results will be incorporated in the survey database “DATRAS” of the "International Council for the Exploration of the Sea (ICES)" and will be used in analytical population studies of these species/stocks, mainly serving as tuning indices in several stock assessments leading to the fishing TACs and quota. Also abundance indices for several round fish species (cod, whiting, bib, tub gurnard, …) and elasmobranches (sharks and rays) will be constructed. Additionally, several other investigations are planned, such as (a) the construction of "age-length-keys" for a number of commercially important flatfish species (turbot, brill, plaice and sole) and cod, and (b) documenting distribution and abundance of all commercial and non-commercial bycatch species (both fish and non-fish).

**b) ILVO – EU 7KP CleanSea**

There is an urgent need for an improved knowledge base for the management of marine litter. CleanSea aims to generate new information on the impacts (biological, social and economic) of marine litter, develop novel tools needed

to collect and monitor litter and protocols needed for monitoring data (litter composition and quantities) and evaluate the impact of mitigation strategies and measures in order to provide options to policy makers in the EU. This will be achieved through 7 work packages, covering biological impacts and technical aspects of marine monitoring, monitoring tools and applications, and an analysis of multilevel socio-economic impacts and barriers to Good Environmental Status. All results will be integrated in a participatory approach in order to identify and assess management measures, strategies and policy options in collaboration with stakeholders that reduce marine litter and alleviate diverse ecological and socio-economic impacts.

**c) ILVO - Survival of rays (SUMARIS project)**

Vitality and reflex testing on rays will be carried out during the campaign as a pilot study for further protocol development. Between 5-16 (max.) live rays will be sampled and their survival will be followed up during the survey. Onboard the rays will be kept inside monitoring boxes with seawater recirculation and upon return transported to ILVO.

**d) Jellyfish monitoring (OD Nature)**

To determine the effect of winter temperature on the presence and abundance of moon jellyfish Aurelia aurita in Zeebrugge harbour and learn more about the seasonal cycle of A. aurita. a monitoring program was set up by OD Nature. ILVO will assist in this monitoring program by recording observations of jellyfish in the mooring deck of Zeebrugge and at sea.

**e) OD Nature-LN (ICOS)**

The AUMS (Autonomous Underway Measurement System) system is inspired by the success of similar systems deployed on various ships of opportunity in the framework of the European Union FerryBox project (www.ferrybox.org). The instrumentation will greatly enhance the continuous oceanographic measurements made by RV Belgica by taking advantage of the significant technological improvements since the design of the existing (salinity, temperature, fluorescence) systems (cfr. ICOS Standards). In particular, many new parameters can now be measured continuously including important ecosystem parameters such as nitrate, ammonia, silicate, dissolved oxygen and CO2, turbidity, alkalinity and phytoplankton pigments. In addition, the new equipment allows automatic acquisition and preservation of water samples, rendering RV Belgica operations significantly more efficient by reducing onboard human resources. Data will be available in near real-time via OD Nature's public website (http://odnature.naturalsciences.be/belgica/en/odas) and following quality control, from the Belgian Marine Data Centre. Since 2015, the AUMS data are also delivered to the EC ESFRI project ICOS.

**f) ESA-MC (GNSS)**

For the European Space Agency continuous GNSS (Global Navigation Satellite system) data is autonomously acquired in the maritime environment for performance evaluation under different conditions.

## 4. OPERATIONAL COURSE

*All times are given in local time. All coordinates in WGS84.*
*Throughout the campaign, measurements are made with the AUMS system.*

**Monday 27/08/2018**

| | |
|---|---|
| 08h30-12h00 | Embarkation of instruments and personnel |
| 12h00: | Transit to station 40 + fishing at stations 40, 86, 39, 37 |
| | Transit to station 28 |

**Tuesday 28/08/2018**

| | |
|---|---|
| 07h00-dusk | Fishing at stations 28, 73, 62, 61, 24, 26, 25, 115 |
| | Transit to station 19 |

**Wednesday 29/08/2018**

07h00-dusk Fishing at stations 19, 18, 114, 22, 110, 60, 72
Transit to station 17

**Thursday 30/08/2018**

07h00-dusk Fishing at stations 17, 16, 112, 11, 113, 116, 9, 8
Transit to station 82

**Friday 31/08/2018**

07h00-15h45 Fishing at stations 82, 91, 92, 98
Transit to Ipswich

15h45 Arrival at Ipswich

**Saturday 01/09/2018 & Sunday 02/09/2018**

Mid-survey break at Ipswich

**Monday 03/09/2018**

04h00-07h00 Transit to station 83
07h00-dusk Fishing at stations 83, 93, 95, 80, 38, 84
Transit to station 94

**Tuesday 04/09/2018**

07h00-dusk Fishing at stations 94, 96, 85, 34, 33, 32, 4, 30
Transit to station 7

**Wednesday 05/09/2018**

07h00-dusk Fishing at stations 7, 6, 63, 29, 107, 90, 102, 64
Transit to station 5

**Thursday 06/09/2018**

07h00-18h30 Fishing at stations 5, 3, 2, 1
18h30–21h00 Transit to station Ostend to drop off living material
21h00 Transit to anchor position before Zeebrugge

**Friday 07/09/2018**

09h00- 11h00 Arrival at Zeebrugge and debarkation of material and personnel

- End of campaign 2018/19ab –

## 5. TRACK PLOT

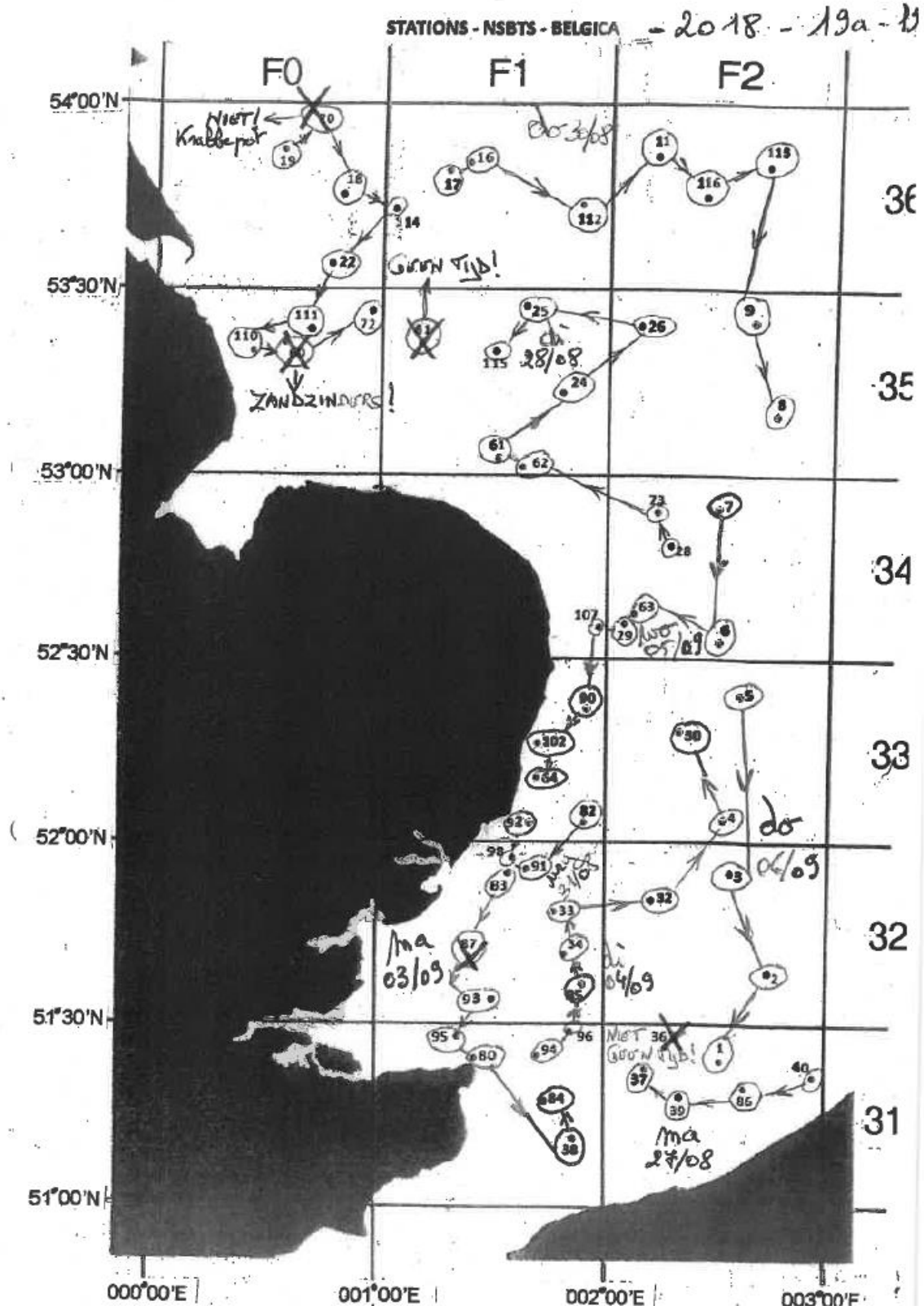


*Figure 1: Track plot of campaign 2018/19ab*

## 6. MEASUREMENTS AND SAMPLING

***Table 1: List of fishing stations (tracks) of campaign 2018/19ab (sampling activities for all of the above mentioned scientific objectives was performed in the catches realized on these tracks).***

| | Shooting position | | Hauling position | |
|---|---|---|---|---|
| Station Name | Latitude | Longitude | Latitude | Longitude |
| 40 | 51.3597 | 2.9417 | 51.3508 | 2.9222 |
| 86 | 51.3243 | 2.6360 | 51.2907 | 2.6290 |
| 39 | 51.3003 | 2.3462 | 51.3192 | 2.3833 |
| 37 | 51.3808 | 2.1862 | 51.4043 | 2.2167 |
| 28 | 52.8070 | 2.2870 | 52.8370 | 2.2740 |
| 73 | 52.8658 | 2.2413 | 52.8938 | 2.2295 |
| 62 | 53.0003 | 1.7560 | 53.0132 | 1.7213 |
| 61 | 53.0160 | 1.5555 | 53.0410 | 1.5165 |
| 24 | 53.2232 | 1.7958 | 53.2415 | 1.7537 |
| 26 | 53.4463 | 2.0683 | 53.4255 | 2.1057 |
| 25 | 53.4207 | 1.6522 | 53.4463 | 1.6345 |
| 115 | 53.3300 | 1.5068 | 53.3113 | 1.5428 |
| 19 | 53.9480 | .5058 | 53.9767 | .4870 |
| 18 | 53.8080 | .8292 | 53.7787 | .8237 |
| 114 | 53.7152 | 1.0480 | 53.6875 | 1.0705 |
| 22 | 53.5682 | .7632 | 53.5682 | .7462 |
| 111 | 53.4725 | .6750 | 53.4443 | .6473 |
| 110 | 53.3328 | .4313 | 53.3317 | .4787 |
| 60 | 53.3163 | .5612 | 53.3457 | .5677 |
| 72 | 53.4700 | .9168 | 53.4442 | .9452 |
| 17 | 53.8207 | 1.2252 | 53.8208 | 1.2530 |
| 16 | 53.8428 | 1.3755 | 53.8508 | 1.4215 |
| 112 | 53.7725 | 1.8343 | 53.7457 | 1.8583 |
| 11 | 53.8728 | 1.2160 | 53.8997 | 1.2440 |
| 113 | 53.8602 | 1.6125 | 53.8418 | 1.6568 |
| 116 | 53.7608 | 1.5443 | 53.7547 | 1.4887 |
| 9 | 53.4543 | 1.6708 | 53.4240 | 1.6478 |
| 8 | 53.1960 | 1.7442 | 53.1670 | 1.7422 |
| 82 | 52.0533 | 1.9065 | 52.0240 | 1.8955 |
| 91 | 51.9250 | 1.6515 | 51.9042 | 1.6195 |
| 92 | 52.0147 | 1.6445 | 52.0423 | 1.6573 |
| 98 | 51.9570 | 1.5890 | 51.9267 | 1.5762 |
| 83 | 51.9493 | 1.5855 | 51.9202 | 1.5743 |
| 93 | 51.5633 | 1.5002 | 51.5398 | 1.4630 |
| 95 | 51.4508 | 1.3572 | 51.4578 | 1.3062 |
| 80 | 51.4578 | 1.4142 | 51.4095 | 1.4625 |
| 38 | 51.1862 | 1.8708 | 51.2033 | 1.9148 |
| 84 | 51.2823 | 1.7348 | 51.2537 | 1.7150 |

| | | | | |
|---|---|---|---|---|
| 94 | 51.3873 | 1.6910 | 51.4168 | 1.7073 |
| 96 | 51.4610 | 1.8498 | 51.4915 | 1.8657 |
| 85 | 51.5680 | 1.8637 | 51.5952 | 1.8898 |
| 34 | 51.6640 | 1.8288 | 51.6962 | 1.8250 |
| 33 | 51.7777 | 1.7822 | 51.8105 | 1.7768 |
| 32 | 51.8067 | 2.1840 | 51.8363 | 2.2063 |
| 4 | 52.0305 | 2.4880 | 52.0547 | 2.5222 |
| 30 | 52.2885 | 2.2668 | 52.3003 | 2.2013 |
| 7 | 52.9068 | 2.5033 | 52.9270 | 2.5438 |
| 6 | 52.5718 | 2.5287 | 52.5427 | 2.5287 |
| 63 | 52.6290 | 2.1237 | 52.6627 | 2.1222 |
| 29 | 52.5968 | 2.0753 | 52.5813 | 2.0263 |
| 107 | 52.5872 | 1.9673 | 52.5530 | 1.9020 |
| 90 | 52.3597 | 1.9133 | 52.3278 | 1.9020 |
| 102 | 52.2702 | 1.6958 | 52.2400 | 1.6797 |
| 64 | 52.1823 | 1.7085 | 52.1962 | 1.7542 |
| 5 | 52.4240 | 2.6260 | 52.3997 | 2.5998 |
| 3 | 51.9112 | 2.5603 | 51.9147 | 2.5090 |
| 2 | 51.6192 | 2.7583 | 51.6508 | 2.7347 |
| 1 | 51.4228 | 2.5573 | 51.4033 | 2.5255 |

## 7. REMARKS

- The weather conditions were sufficient to carry out all fishing activities during the two weeks of the campaign.
- The maximum speed during transits was substantially lower than in the previous years, consequently the stations 81 and 36 had to be skipped due to lack of time.
- Due to the presence of passive fishing gear (crab pots) on the fishing track, stations 20 and 87 had to be cancelled.
- Due to net damage station 60 was lost and there was no time to redo it within the time period of the campaign.
- We encountered some minor technical problems that were always quickly solved by the crew of RV Belgica (e.g. not functioning of Marelec fishing gear control system and winch). These did not cause substantial delays or a loss of stations.
- Conclusion: 57 out of a total of 62 planned stations were successfully fished and declared valid. This is within the margin of 90% of the plan to be achieved imposed by the European Commission (DG Mare).

## 8. DATA STORAGE

- All biological data on fish (numbers, lengths, weights and ages) and invertebrates (numbers and sample weight for all species, measurements for commercially important species) have been stored in Smartfish, the database of ILVO.
- Accompanied by all haul information and the required ODAS-parameters (temperature and salinity) the biological data will be uploaded to DATRAS, the survey-database hosted by ICES, by mid-2019. Litter data, collected according to the international protocol supported by the ICES community, will also be uploaded to DATRAS by mid-2019. **All of the data that is in DATRAS is freely available for anyone to use**.

- The survival data on rays is stored in Smartfish, the database of ILVO.
- Monitoring data on jellyfish in the harbours of Zeebrugge and Ipswich and at sea will be provided to OD Nature before the end of 2018.