

FRV "SOLEA", Cruise - Number: 701

Reproductive activities, condition and nutrition of cod in the Baltic Sea (CoBalt 1)

Dates: 18. 03. to 30. 03. 2015

Areas: Bornholm Sea (ICES SD 25), Beltsea (ICES SD 22) and Arkona Sea (ICES SD 24)

Scientist in

Charge: Martina Bleil

Objectives: Monitoring of reproductive activities of cod in the Baltic Sea (**CoBalt**)

The qualitative and quantitative composition of the bottom fish fauna was analysed. In the course of the cruise data or samples have been collected to the following main topics data:

- Spawning activities of cod
- Determination of the amount of “active spawner”
- Length and age structure of spawning stocks
- Content of stomach of cod
- Samples of cod for the analysis of stock structure
- All other fish species are species determined, measured and weighted
- Hydrographical parameters (temperature, salinity and saturation of oxygen) were measured

Narrative: The FRV "Solea" left the port of Rostock - Marienehe on 18. 03. 2015 bound for the Beltsea, Arkona Sea and Bornholm Sea (ICES SD 22; 24 and 25). In these areas the international bottom trawl „TV 3/520“(cod end mesh size $i = 20$ mm) was used. The standard hauls were 0,5 hour hauls with a towing speed of 3 knots on daylight. All together 54 bottom trawls were carried out. 59 hydrographical measurements (CTD-O2-profiles) were made on each fishing station and on some additional stations for the Institute of Baltic Sea

Research Warnemünde. The cruise was finished on 30. 03. 2015 in Rostock - Marienehe.

Preliminary Results:

With regard to cod all trawl catches were analysed for size, weight, age and maturity. The length distribution of the cod in the Bornholm Sea is shown in figure 1.

In ICES SD 25 16 757 cod were caught and 8140 cod were measured.

In the Bornholm Sea dominated as well as in the years before, individuals of the length groups 27 - 34 of cm. The achieved unity catches (kg/1hour) of cod lay especially at very high level (figure 2). In ICES SD 25 has been caught, concerning the weight, more than the double in cod than in the year before.

The analyses of Baltic cod reproductive status show that in the Bornholm Sea very high portion (97%) of the potential male spawner and 89% of the potential female spawner developing gonads (stage of maturity III-VII – "active spawner") showed. 13% of the males were already in spawning condition (stage VI/VII). With the females the spawning had not started yet, it was observed mainly ovaries in the maturity stage III (Tomkiewicz, et. al. 2002).

A total of 59 hydrographical profiles were performed with a Seabird CTD to record vertical profiles on temperature, salinity and oxygen. In the whole Bornholm basin the hydrographical situation was very good for the successful reproduction of cod. On the bottom on no station an oxygen content from under 2ml/l was measured. The hydrographical data on the stations in the ICES SD 25 are given in Table 1.

Tab. 1: Hydrography ICES SD 25

Parameter	Surface	near the bottom
Temperature (°C)	3,0 – 5,0	3,8 - 8,5
Salinity (ppt)	6,4 – 8, 2	8,0 -19,6
content of Oxygen (ml/l)	8,6 – 8,9	2,6 – 8,6

Figure 1: FRV “Solea”, cruise 701: CoBalt 1, Distribution of total length - Lt (cm) of cod (N=8140), in ICES sub-division 25

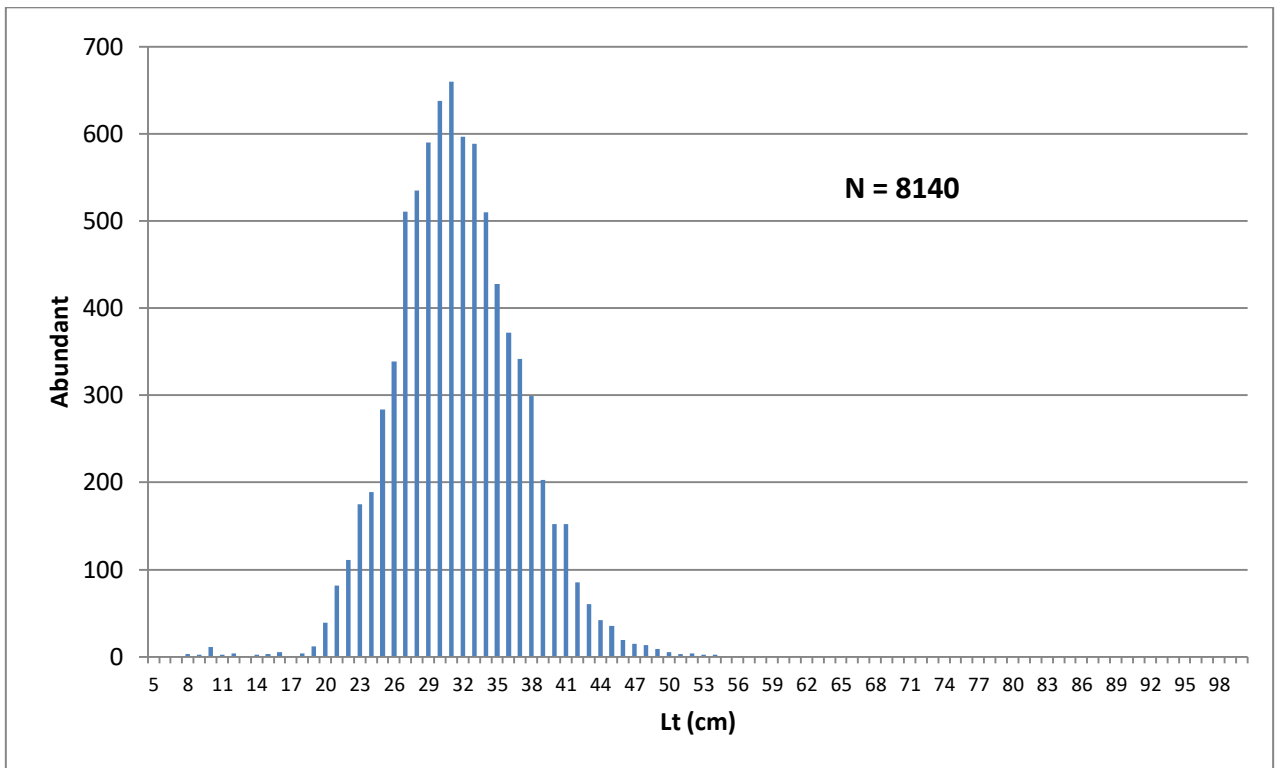


Figure 2 : CPU (kg/1 hour) of cod for different areas and years (22-Beltsea ; 24-Arkona Sea ; 25-Bornholm Sea).

