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# Survey of the German Commercial Herring Fisheries in 1967

by

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The total landings of the German herring fishery in the ICES area decreased about 24.7% from 118,900 tons to 89,500 tons. Through the start of the fishing on the Georges Bank in the ICNAF area the total landings in the North Atlantic amounted to 111,800 tons. 82.6% of the catch (73,900 tons) in the ICES area were herring for human consumption and 17.4% (15,600 tons) industrial herring. The herring landings comprise at present 26.3% of the total landings of the German fishing fleet in the North Atlantic.

## Herring Trawlers

The trawlers were fishing in the North Sea, north of the Hebrides, north of Ireland, east of Iceland and off the Norwegian west coast. In July they started a new fishing on the Georges Bank (~~NEAFC~~ ICNAF area). The total catch in the ICES area decreased from 52,900 tons to 39,700 tons (25%). This was mainly due to decreasing landings from all fishing grounds, with one exception (north of Ireland). The effort in the ICES area increased slightly from 2,601 fishing days to 2,647.

In the North Sea the total catch showed a decrease from 14,636 tons to 13,723 tons (6.2%), whereas the effort decreased from 660 to 503 fishing days (23.8%), whereby the catch per day increased from 22.2 tons to 27.3 tons (23.0%).

No fishery took place in the whole year on the "Ostkante" (NE North Sea), an experimental fishery without success was made in January.

The summer fishery started in the last decade of July in the Bressay area and took place mainly near Fair Isle. The fishing lasted until the beginning of September, but the main fishing was in July/August. The total catch during the whole season dropped from 4,864 tons to 2,746 tons (43.5%) and the effort decreased from 255 fishing days to 132 (48.2%), whereas the catch per day increased from 19.1 tons to 20.8 tons (8.9%). Only 1 fishing day was made in July on the Fladen Ground, it yielded 43 tons.

From the Gut area came only 5 trips in August. The total catch increased from 663 tons to 968 tons (46.0%) whereas the effort decreased from 36 fishing days to 28 (22.3%), but the catch per day increased from 18.4 tons to 34.6 tons (88.0%). It must be mentioned that the fishing took place mainly with pelagic trawl and only on spawning concentrations.

The total catch in the Dogger Bank area increased from 8,835 tons to 9,966 tons (12.8%), the effort was with 338 fishing days, the same as in 1966, whereas the catch per effort increased from 26.1 tons to 29.5 tons (13.0%). The fishing took place from August to October, but the main catch was made in August/September. It was carried out mainly on the spawning places off Whitby, Flamborough Head and the NE-Bank. No fishing was made on the edge of the Dogger Bank.

In the Hebrides area the trawlers were fishing from July to December. On 29 trips they caught 7,516 tons. Compared with 1966 the total catch has declined about 20.9%. The effort decreased from 832 fishing days to 318 (61.8%), and the catch per effort increased from 11.4 tons to 23.6 tons (107.0%). The fishing was mainly done with pelagic trawl. The best fishing timewas in October and November.

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28 trips came from north of Ireland in September to November. The total catch increased from 2,403 tons to 7,154 tons (197.7%), the effort from 138 fishing days to 267 (93.5%) and the catch per day from 17.4 tons to 26.8 tons (54.0%). The main fishing gear was the pelagic trawl and the best fishing time was September/October.

In the wintering area of the Atlanto-Scandian herring off east Iceland and on the route to the Norwegian spawning places the trawlers were fishing with pelagic net in January and February. In January the total catch yielded 7,270 tons and in February 148 tons. The effort amounted to 307, respectively 8 fishing days. The catch per day was 23.7 tons and 18.5 tons. The season 1967/68 started at October and was a failure. Only 1,567 tons of herring were caught from October to December. The effort decreased from 692 fishing days to 99, whereby the catch per day decreased from 25.6 tons to 15.8 tons.

Some fishing on the same stock in February and March off the Norwegian coast (Haltenbank and Svinöy) yielded 2,289 tons. Against 1966 the total catch decreased about 32.9%, also the effort declined from 99 fishing days to 65, whereas the catch per day increased slightly from 34.5 tons to 35.2 tons.

Luggers

The luggers were fishing on herring in the North Sea, Skagerak, Hebrides, North and South Ireland and in the East Channel area with drift-net, bottom trawl and pelagic trawl. The total catch declined about 37.0% and amounted to 19,100 tons (in 1966: 30,361 tons). Table 1 shows the landings from the different fishing areas. The North Sea was the main fishing ground and yielded 17,000 tons. The effort decreased from 9,281 fishing days to 6,430 (30.7%). The whole of this decline concerned fishing with trawl.

The drift-net fishery lasted from May to December. The total catch decreased slightly from 9,534 tons to 9,116 tons (4.2%), whereas the effort increased about 10.0% from 3,092 fishing days to 3,330. The catch per day decreased from 3.1 tons to 2.1 tons.

The best fishing places were situated in the northern North Sea. July was on the "Ostkante" the best fishing month. The catch per effort increased in this area from 3.1 tons to 3.4 tons, whereas the effort decreased from 740 fishing days to 365 (50.7%). Consequently, the total catch declined from 2,314 tons to 1,240 tons (46.4%).

The Bressay area was in this year the most productive. The catch per day increased from 2.1 tons to 4.8 tons (128.6%). The effort increased from 60 fishing days to 843 (1,305.0%). The best fishing time was in August. The total catch increased from 128 tons to 1,267 tons (889.8%).

The Fladen Ground was in the last year not very productive. The fishing took place from June to October. The total catch increased from 47 tons to 238 tons (406.4%), and the effort increased from 35 fishing days to 190 (412.9%). The catch per effort was with 1.3 tons, the same as in 1966.

In the Gut area the catch declined from 1,902 tons to 1,169 tons (38.5%), whereas the effort increased from 536 fishing days to 575 (7.3%). The catch per day decreased from 3.6 tons to 2.0 tons (44.4%). The fishery started in May, and the main fishing occurred in June/July. Until October only sporadic catches were made.

The drift-net fishery started in May in the Dogger area and finished in December. The total catch decreased from 4,373 tons to 1,539 tons (64.8%). Effort and catch per effort declined from 1,237 fishing days to 725 (41.4%), respectively from 3.5 tons to 2.1 tons (40.0%). The best fishing month was August.

In the southern North Sea ("Binnensee", Sandettié) the total catch increased from 728 tons to 881 tons (21.0%). This increase was due to a higher effort, which increased from 432 fishing days to 607 (40.5%), whereas the catch per day decreased from 1.7 tons to 1.5 tons (11.8%). The fishing took place from October to December.

The fishing in the eastern Channel area was also in this year a failure. In both fishing areas the herring stock has not improved in spite of diminishing effort.

The drift-net was in this year the most productive gear for the luggers with 47.6% (9,100 tons) of their total catch. In 1966 it was with 9,500 tons (31.3%) on the third place of the catches by luggers.

The luggers' bottom trawl fishery decreased 32.7%, and the total catch dropped from 10,400 tons to 7,000 tons. This was due to a decreasing effort, from 4,077 fishing days to 2,147 (47.3%). However, the catch per effort increased from 2.6 tons to 3.0 tons (15.4%). The trawl fishery for herring was made in January and from June to December, with the main fishing from July to September. In the late winter and spring months the luggers were fishing mainly on groundfish.

The North Sea was, with a catch of 5,800 tons, the main fishing ground for the bottom trawl. From 1966 (9,800 tons) the total catch decreased about 40.8%.

On the "Ostkante" the total catch decreased drastically from 2,950 tons to 51 tons (98.3%). The total effort decreased from 1,792 fishing days to 51 (97.2%), the catch per day from 1.6 tons to 1.0 tons (37.5%). The fishing took place in January, July, October and November.

In the Bressay area the total catch increased from 545 tons to 653 tons (98.2%), whereas the effort declined from 284 fishing days to 172 (39.4%). The catch per effort increased from 1.9 tons to 3.8 tons (100.0%). The main catch was made in July. The catches in June, and from August to October were without importance.

On the Fladen Ground the total catch (105 tons), the effort (90 fishing days) and the catch per effort (1.2 tons), as compared with the preceding year (956 tons, 306 fishing days, 3.1 tons catch per effort) showed a strong decline. June only was the main fishing month; July, and September to November were of no importance.

Fishing trials in January in the Gut area were without success. The main catches were made from June to September, whereas October and November were of no importance. The total catch showed a decreasing tendency from 2,078 tons to 1,119 tons (46.1%) in spite of an increasing effort from 349 fishing days to 449 (28.7%). Decisive for this decline was, that the catch per effort decreased from 3.8 tons to 2.5 tons (34.2%).

In the Dogger area the total catch increased from 3,186 tons to 3,428 tons (7.6%). The effort increased from 669 to 1,069 fishing days (598%) and the catch per day decreased from 4.8 tons to 3.2 tons (33.3%). The luggers were trawling from June to December in this area, but the main catches were made in August/ September.

No fishing was carried out in the east Channel and Sandettié area.

As compensation for the poor fishing results in the North Sea, the luggers were fishing with bottom trawl off the Hebrides, north and south of Ireland and in Skagerak. Of importance were only the catches in July off south Ireland, and in September off north Ireland.

The total catch with pelagic trawl decreased from 10,400 tons to 3,000 tons (71.1%), the effort declined from 2,112 fishing days to 953 (54.8%) and the catch per day from 4.1 tons to 3.1 tons (24.4%).

There was fished with pelagic trawl in all areas of the North Sea, the western British waters and south of Ireland. No fishing with this gear took place in the Norwegian Sea.

The most successful fishing area was the "Ostkante" where the fishing took place from October to December. The total catch decreased from 6,957 tons to 1,267 tons (81.8%), the fishing days from 1,604 to 474 (70.4%) and the catch per effort from 4.3 tons to 2.7 tons (37.2%).

Dogger and Skagerak were the other areas where the pelagic catches were of some importance. In both areas the total catch improved slightly. In the Dogger area the total catch increased from 243 tons to 414 tons (70.4%), due to a higher effort (112 fishing days against 44), whereas the catch per effort declined from 5.5 tons to 3.7 tons (32.7%). The Skagerak fisheries showed a similar result. The total catch increased from 328 tons to 434 tons (32.3%), the effort from 96 fishing days to 136 and the catch per day decreased from 3.4 tons to 3.2 tons (5.9%).

Cutters

The total yield decreased from 35,700 tons to 30,700 tons (14.0%). The decline was mainly due to smaller catches in the industrial fishery in the North Sea. 7,300 tons (1966 = 17,500 tons) came from the North Sea. 3,900 tons of this were herring

for factories. Only 1,794 tons came from the "oil" herring fishery in July to September. The landings from the Baltic for human consumption and industrial purposes increased from 18,100 tons to 24,300 tons.

## Biological Data

The relevant detailed tables will appear in Statistical News Letters No. 40, where the biological data are given monthly by areas.

"Ostkante" (Utsira)

In December 2 samples of herring (n=185) were collected from bottom trawls. The length varied between 22.0 cm and 34.0 cm.. The average length was 29.66 cm.

The bulk of the catch was formed of recovering herring (VIII = 613 ‰), besides maturity stages II (193 ‰), IV (83 ‰), I and V (39 ‰), VII (22 ‰) and III (11 ‰) were present.

According to the meristic characters the bulk of the catch (maturity stages VII/VIII) were autumn spawners, whereas the other maturity stages were late winter spawners.

The age distribution showed the predominance of the year-classes 1963 and 1965 (233 ‰ respectively 222 ‰) and was a mixture of autumn and late winter spawners. The year-classes older than 1958 also had some significance (144 ‰), as well as the following: 1962 (117 ‰), 1961 (106 ‰) and 1960 (89 ‰). All other year-classes were of no importance. The year-classes older than 1958, and also 1960, 1961 and 1962 were mainly autumn spawners.

Bressay Area

From this area 8 samples with 2,621 herring were investigated in July and August.

The average length was 25.41 cm in July and 26.40 cm in August. In July the maturity stages IV (375 ‰) and V (300 ‰) were predominant. Of some importance were the stages III (190 ‰) and II (110 ‰). Besides some juveniles (stage I) and VII/VIII populated the area. In August, stages V (452 ‰), I (161 ‰), VII (147 ‰) and IV (111 ‰) were dominant. The herring was mainly autumn spawners. In August some late winter spawners were found among the younger maturity stages and stage VIII.

The year-class 1963 was the abundant age-group in July and August (426 ‰ and 415 ‰). Of some importance were also the year-classes 1964 (274 ‰ and 188 ‰) and 1962 (127 ‰ and 89 ‰), and in August the year-class 1965 (174 ‰).

Fladen Ground

11 samples with 3,005 herring were examined in August.

The average length was 24.77 cm. Maturity stages I to VIII populated the area, but dominant were only the stages I (355 ‰), V (331 ‰) and IV (129 ‰). The bulk of the herring were autumn spawners, only in the juvenile year-class 1965 was a strong admixture of late winter spawners. Predominating were the year-classes 1965 (383 ‰), 1963 (283 ‰) and 1964 (182 ‰).

Gut

12 samples from the bottom with 4,605 herring were investigated in March, July, August and September.

The average length was 22.45 cm in March respectively 23.87 cm, 25.25 cm and 25.60 cm in the other months. Maturity stages II (560 ‰) and I (431 ‰) were the most abundant in March. In July stages III (495 ‰), IV (222 ‰) and II (202 ‰) were predominant. In August stages V (409 ‰), I (185 ‰) VII (141 ‰) and IV (124 ‰) were prevailing. In September stages I (500 ‰) and VIII (327 ‰) were the most abundant. The bulk of the herring in all months were autumn spawners.

In March the year-class 1964 was the most abundant (709 ‰), of some importance were also the year-classes 1965 (181 ‰) and 1963 (100 ‰). The same year-classes were predominating in July, August and September.

Dogger Bank

From this area 24 samples with 7,434 herring were investigated in March, August and September.

In March the average length was 19.46 cm, from August to September the average length varied from 20.45 cm to 27.79 cm. Maturity stages I (853 ‰) and II (104 ‰) were predominating. In August stages VI (256 ‰), V (211 ‰), I (208 ‰) and VII (139 ‰) were the most abundant, whereas in September stages VI (640 ‰) and I (219 ‰) were prevailing. In all months autumn spawners populated the area.

In March the year-classes 1965 (571 ‰) and 1964 (326 ‰) were the most abundant. In August/September the year-classes 1963 (412 ‰ and 332 ‰), 1965 (221 ‰) and 1964 (208 ‰ and 183 ‰) dominated. In September also the year-class 1960 (106 ‰) was of some significance.

"Binnensee"

In March 2 samples with 200 herring were collected.

The average length was 15.95 cm. Maturity stage I (1,000 ‰) dominated. The herring were autumn spawners of the southern type. The year-class 1965 (975 ‰) dominated.

Egersund

2 samples in March and December with 232 herring came from this area.

The average length was 30.07 cm. In March stages VIII (660 ‰) and II (110 ‰) prevailed. In December stages VIII (419 ‰), II (285 ‰) and V (226 ‰) dominated. The catches were in both months a mixture of autumn and late winter spawners.

In February the year-classes 1963 (323 ‰), 1960 (250 ‰) and older than 1958 (188 ‰) were predominating. In December the year-classes 1962 to 1965 populated the area.

Skagerak

5 samples with 669 herring were examined in March and December.

In March the average length was 18.60 cm and in December 25.02 cm. In March maturity stage I (848 ‰) dominated, whereas in December stages II (656 ‰), I (144 ‰) and VIII (131 ‰) populated the area. The bulk of the catches were autumn spawners.

In March the year-classes 1965 (760 ‰) and 1964 (158 ‰) were dominating, whereas in December mainly the year-class 1965 prevailed.

Great Fisher Bank

6 samples with 3,512 herring came in March and August from this area.

The average length was in March 16.61 cm and in August 24.65 cm. In March juvenile herring of maturity stage I (996 ‰) was dominating, whereas in August stages I to IV prevailed. In March the herring were autumn spawners, and in August some late winter spawners were admixed.

In both months the year-class 1965 (988 ‰ and 580 ‰) was prevailing, however, in August the 1964 year-class (360 ‰) was of some importance.

East of Dogger

From this area 9 samples with 2,620 herring were investigated in March and August.

The average length was in March 17.15 cm and in August 12.76 cm. In both months maturity stage I (991 ‰ and 970 ‰) dominated. The herring were autumn spawners. In August the catch had presumably some admixture of the southern type.

In March the year-class 1965 was dominant (966 ‰), whereas in August the year-classes 1966 (568 ‰) and 1965 (415 ‰) populated the area.

German Bight

4 samples with 414 herring were examined in February, March and August.

The average length in February was 20.89 cm, in March 14.60 cm and in August 10.95 cm. In February juvenile herring of maturity stages I (500 ‰) and II (345 ‰), and recovering herring of stage VIII (133 ‰) were present in the area. In March and August only stage I (1,000 ‰) was found. The herring were autumn spawners, in March presumably herring of the southern type were in the area.

In February the year-classes 1964 (467 ‰), 1965 (333 ‰), 1963 (156 ‰) and year-class 1962 (44 ‰) were present, whereas in March year-class 1965 and in August year-class 1966 (989 ‰) dominated.

Ling Bank

2 samples with 182 herring were collected in August.

The average length was 29.44 cm. Maturity stages V (686 ‰) and IV (264 ‰) were dominant. Only autumn spawners were met with in the area.

The year-classes 1963 (471 ‰), 1962 (156 ‰), 1964 (147 ‰) and 1960 (147 ‰) were dominant.

Cape Wrath

1 sample with 272 herring was examined in July.

The average length was 27.13 cm. Predominating were the maturity stages IV (460 ‰), V (210 ‰) and VIII (170 ‰). The herring were autumn spawners.

Predominant was the 1963 year-class (790 ‰), some importance had also the year-class 1964 (110 ‰).

Hebrides

Only 1 sample with 314 herring was investigated in October.

The average length was 26.59 cm. Maturity stages VII (500 ‰), VIII (220 ‰) and IV (160 ‰) prevailed. The catch was a mixture of autumn and late winter spawners.

The dominating age-groups were the year-classes 1963 (738 ‰) and 1961 (111 ‰).

Kilda

1 sample with 342 herring was examined in November.

The average length was 28.02 cm. Maturity stages VIII (660 ‰), IV (200 ‰) and V (100 ‰) were dominating. The catch was a mixture of autumn and late winter spawners.

Prevailing were the year-classes 1963 (495 ‰), 1961 (172 ‰), 1962 (131 ‰) and 1960 (101 ‰).

Donegal

3 samples with 853 herring were collected in September and October.

The average length was 26.79 cm respectively 26.53 cm. Maturity stages V (740 ‰), IV (110 ‰) and VI (110 ‰) were dominating in September, whereas in October stages V (610 ‰), VII (130 ‰) and VIII (120 ‰) were prevailing. The catches were a mixture of autumn and late winter spawners.

The prevailing age-groups were in September the year-class 1963 (805 ‰) and in October the year-classes 1963 (550 ‰), 1961 (200 ‰) and 1964 (100 ‰).

A report on the German investigation on the Atlanto-Scandian herring is found in Annales Biologiques Volume 24 pages 122-124.

Table 1. Total herring landings (in 1,000 tons) of the German fishing fleet in 1967 (yield of 1966 in brackets).

| | North Sea | Chan-nel | Ska-gerak | N. of Hebrides | N. of Ireland | S. of Ireland | E. of Iceland | Haltenbk. Svinöy Norw. Coast | Baltic | ICES Total | ICNAF Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Trawler | 13.7 (14.6) | -(-) | -(-) | 7.5 (9.5) | 7.2 (2.4) | -(-) | 9.0(22.8) | 2.3 (3.6) | -(-) | 39.7(52.9) | 22.3 (-) |
| Lugger | 17.0 (27.0) | 0(-) | 0.4(0.3) | 0.2 (0.2) | 0.6 (0.1) | 0.9(1.0) | -( 0.7) | - (1.0) | -(-) | 19.1(30.3) | - (-) |
| Drift-net | 9.1 ( 9.5) | 0(-) | -( 0) | - ( -) | - ( -) | -(-) | -( -) | - ( -) | -(-) | 9.1( 9.5) | - (-) |
| Trawl | 5.8 ( 9.8) | 0(-) | 0( 0) | 0 ( 0) | 0.5 ( -) | 0.7(0.6) | -( -) | - ( -) | -(-) | 7.0(10.4) | - (-) |
| Pelagic trawl | 2.1 ( 7.7) | 0(-) | 0.4(0.3) | 0.2 (0.2) | 0.1 (0.1) | 0.2(0.4) | -( 0.7) | - (1.0) | -(-) | 3.0(10.4) | - (-) |
| Deep-sea cutter | 7.3 (17.5) | -(-) | 0( -) | - ( -) | - ( -) | -( -) | -( -) | - ( -) | 23.4(18.1) | 30.7(35.7) | - (-) |
| for consumption: | 3.4 ( 1.9) | -(-) | 0( -) | - ( -) | - ( -) | -( -) | -( -) | - ( -) | 11.7(10.7) | 15.1(12.7) | - (-) |
| for factories | 3.9 (15.6) | -(-) | 0( -) | - ( -) | - ( -) | -( -) | -( -) | - ( -) | 11.7( 7.4) | 15.6(23.0) | - (-) |
| Total | 38.0 (59.1) | 0(0) | 0.4(0.4) | 7.7 (9.7) | 7.8 (2.5) | 0.9(1.0) | 9.0(23.5) | 2.3 (4.6) | 23.4(18.1) | 89.5(118.9) | 22.3 (-) |