

**SCIENTIFIC COUNCIL MEETING – JUNE 2014****ESTONIAN RESEARCH REPORT FOR 2013**

by

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This Report contains fish sampling information for Estonian fishing vessels which operated in NAFO RA in 2013. Fishery took place only in SA 3. Information is from onboard NAFO observers. In Estonia, NAFO observers are employed by the Estonian Marine Institute, and they are specially trained to collect also basic scientific data.

**Sub-area 3****A. Status of the Fishery**

In 2006 there were two vessels involved in finfish fishery. In 2007-2012 there has been mainly one vessel involved in finfish fishery. In 2013 there were four vessels involved in finfish fishery of which two target mainly shrimp and switch to finfish when shrimp catch is poor.

Estonian NAFO observers also collected length, age and sex data. The list of collected data is in Table 1. All lengths are TL and length group (LG) 10 means lengths from 10.0 to 10.9 cm. Mesh size of trawls for mixed fishery of demersal and pelagic fish, in codend was 139-145 mm, for skates 286 mm. Length distributions are presented as sampled number of fish (Tables 4-8, figures 1-3).

Length distribution of *Sebastes* sp. bycatch in Div. 3L shrimp fishery in 2010 and 2012-2013 is given in Table 2 and Figure 4. There was no redfish sampling in 2011. Length distribution of capelin in Div. 3L shrimp fishery in 2012-2013 is given in Table 3 and Figure 5.

Table 1. Biological sampling list for Estonia in 2013. \*Number of sexed fish; \*\*Only age structures collected, fish not aged yet

| Country | Species Code | NAFO Division | Gear | Month | Type of Sample | Directed/ Bycatch/ Discard | No. of samples | No. Measured | No. Sexed** | No. Aged*** | No. Weighed |
|---------|--------------|---------------|------|-------|----------------|----------------------------|----------------|--------------|-------------|-------------|-------------|
| EST     | GHL          | 3L            | OTB  | 1     | OC             | Kept                       | 8              | 350          | 350         | 350         | 350         |
| EST     | GHL          | 3L            | OTB  | 2     | OC             | Kept                       | 21             | 1225         | 1082        | 237         | 1225        |
| EST     | GHL          | 3L            | OTB  | 3     | OC             | Kept                       | 3              | 218          | 172         | 19          | 218         |
| EST     | GHL          | 3L            | OTB  | 4     | OC             | Kept                       | 5              | 325          | 325         | 21          | 325         |
| EST     | GHL          | 3L            | OTB  | 8     | OC             | Kept                       | 1              | 80           | 80          | 30          | 80          |
| EST     | GHL          | 3L            | OTB  | 9     | OC             | Kept                       | 2              | 60           | 30          | 60          | 60          |
| EST     | GHL          | 3L            | OTB  | 11    | OC             | Discarded                  | 1              | 24           |             |             |             |
| EST     | GHL          | 3M            | OTB  | 2     | OC             | Kept                       | 3              | 356          | 295         | 128         | 356         |
| EST     | GHL          | 3M            | OTB  | 3     | OC             | Kept                       | 8              | 561          | 551         | 11          | 561         |
| EST     | GHL          | 3M            | OTB  | 7     | OC             | Kept                       | 3              | 321          | 318         | 121         | 320         |
| EST     | GHL          | 3M            | OTB  | 9     | OC             | Kept                       | 2              | 160          | 60          | 60          | 160         |
| EST     | GHL          | 3N            | OTB  | 8     | OC             | Kept                       | 3              | 240          | 233         | 91          | 240         |
| EST     | GHL          | 3N            | OTB  | 9     | OC             | Kept                       | 1              | 102          |             | 30          | 34          |
| EST     | GHL          | 3N            | OTB  | 10    | OC             | Kept                       | 1              | 4            |             | 4           | 4           |
| EST     | GHL          | 3N            | OTB  | 10    | OC             | Discarded                  | 1              | 1            |             | 1           | 1           |
| EST     | PRA          | 3L            | OTB  | 2     | OC             | Kept                       | 4              | 584          | 584         |             |             |
| EST     | PRA          | 3L            | OTB  | 9     | OC             | Kept                       | 3              | 433          | 433         |             |             |
| EST     | PRA          | 3L            | OTB  | 10    | OC             | Kept                       | 51             | 8134         | 8134        |             |             |
| EST     | PRA          | 3L            | OTB  | 11    | OC             | Kept                       | 29             | 5805         | 5805        |             |             |
| EST     | PRA          | 3L            | OTB  | 12    | OC             | Kept                       | 26             | 5201         | 5201        |             |             |
| EST     | PRA          | 3N            | OTB  | 10    | OC             | Kept                       | 1              | 1            | 1           |             | 1           |
| EST     | RED          | 3L            | OTB  | 2     | OC             | Kept                       | 1              | 107          | 100         | 41          | 107         |
| EST     | RED          | 3L            | OTB  | 2     | OC             | Discarded                  | 3              | 600          |             |             |             |
| EST     | RED          | 3L            | OTB  | 7     | OC             | Kept                       | 4              | 335          | 76          | 30          | 335         |
| EST     | RED          | 3L            | OTB  | 8     | OC             | Kept                       | 4              | 965          |             |             |             |
| EST     | RED          | 3L            | OTB  | 9     | OC             | Kept                       | 7              | 1068         | 133         | 60          | 1068        |
| EST     | RED          | 3L            | OTB  | 10    | OC             | Kept                       | 1              | 152          |             |             | 152         |
| EST     | RED          | 3L            | OTB  | 10    | OC             | Discarded                  | 6              | 145          |             |             |             |
| EST     | RED          | 3M            | OTB  | 2     | OC             | Kept                       | 2              | 101          | 101         | 43          | 101         |
| EST     | RED          | 3M            | OTB  | 3     | OC             | Kept                       | 3              | 375          | 273         | 1           | 262         |
| EST     | RED          | 3M            | OTB  | 4     | OC             | Kept                       | 7              | 816          | 816         | 90          | 816         |
| EST     | RED          | 3M            | OTB  | 5     | OC             | Kept                       | 1              | 133          | 133         | 21          | 133         |
| EST     | RED          | 3M            | OTB  | 6     | OC             | Kept                       | 4              | 106          | 106         | 106         | 106         |
| EST     | RED          | 3M            | OTB  | 7     | OC             | Kept                       | 22             | 1480         | 583         | 300         | 1440        |
| EST     | RED          | 3N            | OTB  | 2     | OC             | Kept                       | 2              | 351          | 247         | 84          | 247         |
| EST     | RED          | 3N            | OTB  | 3     | OC             | Kept                       | 1              | 123          | 123         | 42          | 123         |
| EST     | RED          | 3N            | OTB  | 9     | OC             | Kept                       | 2              | 210          | 60          | 60          | 60          |
| EST     | RED          | 3N            | OTB  | 10    | OC             | Kept                       | 4              | 381          | 1           | 1           | 381         |
| EST     | RED          | 3O            | OTB  | 9     | OC             | Kept                       | 3              | 260          | 188         | 90          | 190         |
| EST     | RED          | 3O            | OTB  | 10    | OC             | Kept                       | 1              | 98           | 41          | 30          | 50          |
| EST     | RED          | 3O            | OTB  | 11    | OC             | Kept                       | 2              | 629          | 345         | 116         | 397         |
| EST     | COD          | 3L            | OTB  | 2     | OC             | Kept                       | 1              | 2            | 2           | 2           | 2           |
| EST     | COD          | 3L            | OTB  | 9     | OC             | Kept                       | 2              | 288          |             |             | 288         |
| EST     | COD          | 3L            | OTB  | 9     | OC             | Discarded                  | 1              | 25           |             |             | 25          |
| EST     | COD          | 3M            | OTB  | 4     | OC             | Kept                       | 1              | 35           | 35          | 17          | 35          |

| Country | Species Code | NAFO Division | Gear | Month | Type of Sample | Directed/ Bycatch/ Discard | No. of samples | No. Measured | No. Sexed** | No. Aged*** | No. Weighed |
|---------|--------------|---------------|------|-------|----------------|----------------------------|----------------|--------------|-------------|-------------|-------------|
| EST     | COD          | 3M            | OTB  | 6     | OC             | Kept                       | 2              | 43           | 43          | 43          | 43          |
| EST     | COD          | 3M            | OTB  | 6     | OC             | Discarded                  | 1              | 16           | 16          | 16          | 16          |
| EST     | COD          | 3M            | OTB  | 7     | OC             | Kept                       | 7              | 303          | 13          | 41          | 303         |
| EST     | COD          | 3M            | OTB  | 7     | OC             | Discarded                  | 2              | 90           | 1           | 3           | 90          |
| EST     | COD          | 3M            | OTB  | 8     | OC             | Kept                       | 2              | 100          |             |             | 52          |
| EST     | COD          | 3M            | OTB  | 8     | OC             | Discarded                  | 1              | 23           |             |             | 20          |
| EST     | COD          | 3M            | OTB  | 9     | OC             | Kept                       | 6              | 516          |             |             | 516         |
| EST     | COD          | 3M            | OTB  | 9     | OC             | Discarded                  | 1              | 131          |             |             | 131         |
| EST     | COD          | 3M            | OTB  | 10    | OC             | Kept                       | 2              | 89           | 89          | 89          | 89          |
| EST     | COD          | 3M            | OTB  | 10    | OC             | Discarded                  | 1              | 11           | 11          | 11          | 11          |
| EST     | COD          | 3N            | OTB  | 8     | OC             | Kept                       | 2              | 24           | 24          | 24          | 24          |
| EST     | COD          | 3N            | OTB  | 8     | OC             | Discarded                  | 1              | 16           | 14          | 16          | 16          |
| EST     | COD          | 3N            | OTB  | 11    | OC             | Kept                       | 1              | 100          | 100         | 50          | 100         |
| EST     | COD          | 3N            | OTB  | 11    | OC             | Discarded                  | 2              | 133          | 133         | 73          | 133         |
| EST     | COD          | 3N            | OTB  | 12    | OC             | Discarded                  | 1              | 100          | 100         | 50          | 100         |
| EST     | COD          | 3O            | OTB  | 11    | OC             | Discarded                  | 1              | 14           | 14          | 14          | 14          |
| EST     | CAP          | 3L            | OTB  | 10    | OC             | Discarded                  | 3              | 78           |             |             |             |
| EST     | CAP          | 3L            | OTB  | 11    | OC             | Discarded                  | 5              | 560          |             |             |             |
| EST     | CAP          | 3L            | OTB  | 12    | OC             | Discarded                  | 7              | 1017         |             |             |             |
| EST     | PLA          | 3L            | OTB  | 9     | OC             | Kept                       | 1              | 152          |             |             | 152         |
| EST     | PLA          | 3N            | OTB  | 9     | OC             | Discarded                  | 1              | 50           |             | 30          | 33          |
| EST     | PLA          | 3N            | OTB  | 10    | OC             | Kept                       | 3              | 348          |             |             | 348         |
| EST     | PLA          | 3N            | OTB  | 10    | OC             | Discarded                  | 1              | 2            |             |             | 2           |
| EST     | PLA          | 3N            | OTB  | 11    | OC             | Kept                       | 1              | 133          |             |             | 133         |
| EST     | YEL          | 3N            | OTB  | 9     | OC             | Discarded                  | 1              | 30           |             |             |             |
| EST     | YEL          | 3N            | OTB  | 10    | OC             | Kept                       | 12             | 1570         | 29          | 38          | 1570        |
| EST     | YEL          | 3N            | OTB  | 10    | OC             | Discarded                  | 2              | 3            | 1           | 2           | 3           |
| EST     | YEL          | 3N            | OTB  | 11    | OC             | Kept                       | 1              | 187          | 139         | 78          | 139         |
| EST     | YEL          | 3N            | OTB  | 12    | OC             | Discarded                  | 2              | 415          | 322         |             | 415         |
| EST     | RHG          | 3N            | OTB  | 9     | OC             | Discarded                  | 1              | 79           |             |             | 79          |
| EST     | RHG          | 3N            | OTB  | 10    | OC             | Kept                       | 1              | 5            |             |             | 5           |
| EST     | RNG          | 3N            | OTB  | 9     | OC             | Discarded                  | 1              | 1            |             |             | 1           |
| EST     | CAS          | 3N            | OTB  | 9     | OC             | Discarded                  | 1              | 1            |             |             | 1           |
| EST     | HKR          | 3N            | OTB  | 9     | OC             | Discarded                  | 1              | 12           |             |             | 12          |
| EST     | GPE          | 3N            | OTB  | 9     | OC             | Discarded                  | 1              | 2            |             |             | 2           |
| EST     | GPE          | 3N            | OTB  | 10    | OC             | Discarded                  | 1              | 5            | 5           | 5           | 5           |
| EST     | WIT          | 3N            | OTB  | 10    | OC             | Discarded                  | 1              | 2            | 1           | 2           | 2           |
| EST     | WHD          | 3N            | OTB  | 10    | OC             | Discarded                  | 1              | 1            | 1           | 1           | 1           |
| EST     | GDE          | 3N            | OTB  | 10    | OC             | Discarded                  | 1              | 2            | 2           | 2           | 2           |
| EST     | CAA          | 3N            | OTB  | 10    | OC             | Kept                       | 1              | 1            | 1           |             | 1           |

Table 2. Length distribution of *Sebastes* sp. bycatch in Div. 3L shrimp fishery in 2010-2013. Trawl mesh size is 44mm and Nordmore bar spacing is 22mm.

| LG,<br>cm | 3L                  |       |                     |       |                     |       |
|-----------|---------------------|-------|---------------------|-------|---------------------|-------|
|           | 2010                |       | 2012                |       | 2013                |       |
|           | No. of<br>specimens | %     | No. of<br>specimens | %     | No. of<br>specimens | %     |
| 5         |                     |       | 19                  | 0.59  | 1                   | 0.13  |
| 6         |                     | 0.00  | 118                 | 3.64  | 7                   | 0.94  |
| 7         | 8                   | 0.09  | 98                  | 3.02  | 9                   | 1.21  |
| 8         | 244                 | 2.85  | 279                 | 8.60  | 28                  | 3.76  |
| 9         | 607                 | 7.10  | 543                 | 16.73 | 93                  | 12.48 |
| 10        | 1826                | 21.36 | 676                 | 20.83 | 216                 | 28.99 |
| 11        | 1473                | 17.23 | 322                 | 9.92  | 179                 | 24.03 |
| 12        | 501                 | 5.86  | 241                 | 7.43  | 61                  | 8.19  |
| 13        | 734                 | 8.59  | 291                 | 8.97  | 59                  | 7.92  |
| 14        | 1042                | 12.19 | 382                 | 11.77 | 53                  | 7.11  |
| 15        | 836                 | 9.78  | 181                 | 5.58  | 13                  | 1.74  |
| 16        | 567                 | 6.63  | 41                  | 1.26  | 10                  | 1.34  |
| 17        | 475                 | 5.56  | 22                  | 0.68  | 7                   | 0.94  |
| 18        | 149                 | 1.74  | 22                  | 0.68  | 8                   | 1.07  |
| 19        | 58                  | 0.68  | 6                   | 0.18  | 1                   | 0.13  |
| 20        | 21                  | 0.25  | 2                   | 0.06  |                     | 0.00  |
| 21        | 2                   | 0.02  | 1                   | 0.03  |                     | 0.00  |
| 22        | 1                   | 0.01  | 1                   | 0.03  |                     | 0.00  |
| 23        |                     | 0.00  |                     | 0.00  |                     | 0.00  |
| 24        | 1                   | 0.01  |                     | 0.00  |                     | 0.00  |
| 25        | 1                   | 0.01  |                     | 0.00  |                     | 0.00  |
| 26        | 1                   | 0.01  |                     | 0.00  |                     | 0.00  |
| 27        |                     | 0.00  |                     | 0.00  |                     | 0.00  |
| 28        |                     | 0.00  |                     | 0.00  |                     | 0.00  |
| 29        | 1                   | 0.01  |                     | 0.00  |                     | 0.00  |
| 30        |                     | 0.00  |                     | 0.00  |                     | 0.00  |
| 31        |                     | 0.00  |                     | 0.00  |                     | 0.00  |
| 32        |                     | 0.00  |                     | 0.00  |                     | 0.00  |
| 33        |                     | 0.00  |                     | 0.00  |                     | 0.00  |
| 34        |                     | 0.00  |                     | 0.00  |                     | 0.00  |
| 35        |                     | 0.00  |                     | 0.00  |                     | 0.00  |
| 36        |                     | 0.00  |                     | 0.00  |                     | 0.00  |
| 37        | 1                   | 0.01  |                     | 0.00  |                     | 0.00  |
| Total     | 8549                | 100   | 3245                | 100   | 745                 | 100   |

Table 3. Length distribution of capelin bycatch in Div. 3L shrimp fishery in 2012-2013. Trawl mesh size is 44mm and Nordmore bar spacing is 22mm.

| 3L      |        |                  |       |                  |       |
|---------|--------|------------------|-------|------------------|-------|
| Species | LG, cm | 2012             |       | 2013             |       |
|         |        | No. of specimens | %     | No. of specimens | %     |
| CAP     | 9      | 2                | 0.11  | 16               | 0.97  |
|         | 10     | 52               | 2.81  | 305              | 18.44 |
|         | 11     | 182              | 9.84  | 550              | 33.25 |
|         | 12     | 290              | 15.68 | 311              | 18.80 |
|         | 13     | 608              | 32.86 | 294              | 17.78 |
|         | 14     | 500              | 27.03 | 112              | 6.77  |
|         | 15     | 198              | 10.70 | 56               | 3.39  |
|         | 16     | 18               | 0.97  | 10               | 0.60  |
| Total   |        | 1850             | 100   | 1654             | 100   |

Table 4. Length distribution (sampled number of fish) of cod in 2013 Estonian fisheries in NAFO area. 0-female, 1-male, 9-juvenile, ind-unsexed.

| LG, cm | 3L |   |     |   | 3L<br>Total | 3M |   |     |      | 3M<br>Total | 3N |   |     |   | 3N<br>Total | 3O |   |     |   | 3O<br>Total |
|--------|----|---|-----|---|-------------|----|---|-----|------|-------------|----|---|-----|---|-------------|----|---|-----|---|-------------|
|        | 0  | 1 | ind | 9 |             | 0  | 1 | ind | 9    |             | 0  | 1 | ind | 9 |             | 0  | 1 | ind | 9 |             |
| 23     |    |   |     |   |             |    |   |     | 1    | 1           |    |   |     |   |             |    |   |     |   |             |
| 24     |    |   |     |   |             |    |   |     | 2    | 2           |    |   |     |   |             |    |   |     |   |             |
| 25     |    |   |     |   |             |    |   |     | 6 1  | 7           |    |   |     |   |             |    |   |     |   |             |
| 26     |    |   |     |   |             |    |   |     | 8 3  | 11          |    |   |     |   |             |    |   |     |   |             |
| 27     |    |   |     |   |             | 1  | 1 |     | 17   | 19          |    |   |     |   |             |    |   |     |   |             |
| 28     |    |   | 1   |   | 1           | 2  | 1 |     | 20 1 | 24          |    |   |     |   |             |    |   |     |   |             |
| 29     |    |   |     |   |             | 3  | 2 |     | 12 1 | 18          |    |   |     |   |             |    |   |     |   |             |
| 30     |    |   | 2   |   | 2           |    |   |     | 14   | 14          |    |   |     |   |             |    |   |     |   |             |
| 31     |    |   | 1   |   | 1           | 1  |   |     | 18 1 | 20          |    |   |     |   |             |    |   |     |   |             |
| 32     |    |   | 2   |   | 2           | 1  |   |     | 17 1 | 19          |    | 2 | 2   |   | 4           |    |   |     |   |             |
| 33     |    |   | 2   |   | 2           | 1  |   |     | 11   | 12          |    | 2 |     |   | 2           |    |   |     |   |             |
| 34     |    |   | 3   |   | 3           | 1  |   |     | 9    | 10          |    | 1 |     |   | 1           |    |   |     |   |             |
| 35     |    |   |     |   |             | 1  |   |     | 11   | 12          |    |   |     |   |             |    |   |     |   |             |
| 36     |    |   | 1   |   | 1           |    |   |     | 18   | 18          |    | 2 |     |   | 2           |    |   |     |   |             |
| 37     |    |   |     |   |             |    |   |     | 15   | 15          |    | 5 |     |   | 5           |    |   |     |   |             |
| 38     |    |   | 1   |   | 1           |    |   |     | 19   | 19          |    |   |     |   |             |    |   |     |   |             |
| 39     |    |   | 5   |   | 5           |    | 2 |     | 18   | 20          |    | 1 |     |   | 1           |    |   |     |   |             |
| 40     |    |   | 7   |   | 7           |    | 3 |     | 27   | 30          |    | 2 |     |   | 2           |    |   |     |   |             |
| 41     |    |   | 12  |   | 12          | 4  | 3 |     | 26   | 33          | 3  | 2 |     |   | 5           |    |   |     |   |             |
| 42     |    |   | 11  |   | 11          | 3  | 2 |     | 52   | 57          | 1  |   |     |   | 1           |    |   |     |   |             |
| 43     |    |   | 12  |   | 12          | 2  | 5 |     | 38   | 45          | 3  | 1 |     |   | 4           |    |   |     |   |             |
| 44     |    |   | 18  |   | 18          | 5  | 4 |     | 58   | 67          | 1  | 1 |     |   | 2           |    |   |     |   |             |
| 45     |    |   | 18  |   | 18          | 2  | 4 |     | 32   | 38          |    | 1 |     |   | 1           |    |   |     |   |             |
| 46     |    |   | 22  |   | 22          | 2  | 6 |     | 42   | 50          | 7  | 3 |     |   | 10          |    |   |     |   |             |
| 47     |    |   | 15  |   | 15          | 8  | 6 |     | 56   | 70          | 2  | 2 |     |   | 4           |    |   |     |   |             |
| 48     |    |   | 16  |   | 16          | 6  | 4 |     | 53   | 63          | 4  | 2 |     |   | 6           |    |   |     |   |             |
| 49     |    |   | 13  |   | 13          | 4  | 7 |     | 47   | 58          | 3  | 3 |     |   | 6           |    |   |     |   |             |
| 50     |    |   | 14  |   | 14          | 7  | 5 |     | 49   | 61          | 4  | 2 |     |   | 6           | 2  |   |     |   | 2           |
| 51     |    |   | 11  |   | 11          | 2  | 5 |     | 44   | 51          | 5  | 7 |     |   | 12          |    | 1 |     |   | 1           |
| 52     |    |   | 14  |   | 14          | 4  | 4 |     | 37   | 45          | 16 | 7 |     |   | 23          | 1  |   |     |   | 1           |
| 53     |    |   | 6   |   | 6           | 2  | 3 |     | 25   | 30          | 4  | 4 |     |   | 8           | 1  |   |     |   | 1           |
| 54     |    |   | 8   |   | 8           | 1  | 4 |     | 32   | 37          | 5  | 8 |     |   | 13          | 1  |   |     |   | 1           |
| 55     |    |   | 12  |   | 12          | 1  | 1 |     | 26   | 28          | 7  | 6 |     |   | 13          | 3  | 1 |     |   | 4           |
| 56     | 1  | 1 |     |   | 9           | 1  | 4 |     | 17   | 22          | 7  | 6 |     |   | 13          | 2  | 1 |     |   | 3           |
| 57     |    |   | 5   |   | 5           | 1  | 1 |     | 23   | 25          | 8  | 5 |     |   | 13          | 1  |   |     |   | 1           |
| 58     |    |   | 5   |   | 5           | 3  | 2 |     | 23   | 28          | 7  | 8 |     |   | 15          |    |   |     |   |             |
| 59     |    |   | 1   |   | 1           | 2  | 1 |     | 15   | 18          | 10 | 5 |     |   | 15          |    |   |     |   |             |
| 60     |    |   | 5   |   | 5           | 3  | 1 |     | 19   | 23          | 5  | 7 |     |   | 12          |    |   |     |   |             |
| 61     |    |   | 4   |   | 4           | 5  | 3 |     | 13   | 21          | 8  | 2 |     |   | 10          |    |   |     |   |             |
| 62     |    |   | 9   |   | 9           | 2  | 1 |     | 11   | 14          | 10 | 7 |     |   | 17          |    |   |     |   |             |
| 63     |    |   | 8   |   | 8           | 3  | 1 |     | 22   | 26          | 7  | 7 |     |   | 14          |    |   |     |   |             |
| 64     |    |   | 6   |   | 6           | 2  | 2 |     | 22   | 26          | 7  | 5 |     |   | 12          |    |   |     |   |             |
| 65     |    |   | 4   |   | 4           | 2  | 1 |     | 15   | 18          | 9  | 6 |     |   | 15          |    |   |     |   |             |
| 66     |    |   | 8   |   | 8           | 3  | 3 |     | 14   | 20          | 6  | 6 |     |   | 12          |    |   |     |   |             |
| 67     |    |   | 5   |   | 5           |    |   |     | 11   | 11          | 7  | 9 |     |   | 16          |    |   |     |   |             |
| 68     |    |   | 2   |   | 2           | 3  |   |     | 14   | 17          | 3  | 6 |     |   | 9           |    |   |     |   |             |
| 69     |    |   | 1   |   | 1           |    | 1 |     | 12   | 13          | 6  | 2 |     |   | 8           |    |   |     |   |             |
| 70     |    |   | 6   |   | 6           | 1  | 1 |     | 11   | 13          | 4  | 3 |     |   | 7           |    |   |     |   |             |
| 71     |    |   | 2   |   | 2           |    | 4 |     | 8    | 12          | 7  | 3 |     |   | 10          |    |   |     |   |             |
| 72     |    |   | 3   |   | 3           | 1  | 1 |     | 13   | 15          | 2  | 6 |     |   | 8           |    |   |     |   |             |
| 73     |    |   | 2   |   | 2           |    | 1 |     | 6    | 7           | 4  | 3 |     |   | 7           |    |   |     |   |             |

| LG, cm | 3L |   |     |   | 3L<br>Total | 3M |     |      |   | 3M<br>Total | 3N  |     |     |   | 3N Total | 3O |   |     |   | 3O Total |
|--------|----|---|-----|---|-------------|----|-----|------|---|-------------|-----|-----|-----|---|----------|----|---|-----|---|----------|
|        | 0  | 1 | ind | 9 |             | 0  | 1   | ind  | 9 |             | 0   | 1   | ind | 9 |          | 0  | 1 | ind | 9 |          |
| 74     |    |   | 1   |   | 1           | 1  |     |      | 4 | 5           | 4   | 4   |     |   | 8        |    |   |     |   |          |
| 75     |    |   | 1   |   | 1           |    |     |      | 5 | 5           | 2   | 1   |     |   | 3        |    |   |     |   |          |
| 76     |    |   |     |   |             |    |     |      | 3 | 3           | 3   |     |     |   | 3        |    |   |     |   |          |
| 77     |    |   |     |   |             |    |     |      | 1 | 1           | 3   |     |     |   | 3        |    |   |     |   |          |
| 78     |    |   | 1   |   | 1           | 1  |     |      | 1 | 2           | 2   | 2   |     |   | 4        |    |   |     |   |          |
| 79     |    |   |     |   |             |    |     |      |   |             | 2   |     |     |   | 2        |    |   |     |   |          |
| 80     |    |   |     |   |             |    |     |      |   |             |     |     | 2   |   | 2        |    |   |     |   |          |
| 81     |    |   |     |   |             |    |     |      | 1 | 1           |     | 1   |     |   | 1        |    |   |     |   |          |
| 82     |    |   |     |   |             |    |     |      | 2 | 2           |     |     |     |   |          |    |   |     |   |          |
| 83     |    |   |     |   |             |    |     |      | 1 | 1           |     |     |     |   |          |    |   |     |   |          |
| 84     |    |   |     |   |             |    |     |      | 1 | 1           | 1   |     |     |   | 1        |    |   |     |   |          |
| 85     |    |   |     |   |             |    |     |      | 2 | 2           |     |     |     |   |          |    |   |     |   |          |
| 86     |    |   |     |   |             |    |     |      |   |             |     |     |     |   |          |    |   |     |   |          |
| 87     |    |   |     |   |             |    |     |      |   |             |     |     |     |   |          |    |   |     |   |          |
| 88     |    |   |     |   |             |    |     |      |   |             |     |     |     |   |          |    |   |     |   |          |
| 89     |    |   |     |   |             |    |     |      |   |             |     |     | 2   |   | 2        |    |   |     |   |          |
| 90     |    |   |     |   |             |    |     |      |   |             |     |     |     |   |          |    |   |     |   |          |
| 91     |    |   |     |   |             |    |     |      |   |             |     |     |     |   |          |    |   |     |   |          |
| 92     |    |   |     |   |             |    |     |      |   |             |     |     |     |   |          |    |   |     |   |          |
| 93     |    |   |     |   |             |    |     |      |   |             |     |     |     |   |          |    |   |     |   |          |
| 94     |    |   |     |   |             |    |     |      |   |             |     |     |     |   |          |    |   |     |   |          |
| 95     |    |   |     |   |             | 1  |     |      |   | 1           |     |     |     |   |          |    |   |     |   |          |
| Total  | 1  | 1 | 313 |   | 315         | 99 | 100 | 1150 | 8 | 1357        | 199 | 172 | 2   |   | 373      | 11 | 3 |     |   | 14       |

Table 5. Length distribution (sampled number of fish) of Greenland halibut in 2013 Estonian fisheries in NAFO area. 0-female, 1-male, 9-juvenile, ind-unsexed.

| LG, cm | 3L  |    |     | 3L Total | 3M |     |   | 3M<br>Total | 3N |     |   | 3N Total |
|--------|-----|----|-----|----------|----|-----|---|-------------|----|-----|---|----------|
|        | 0   | 1  | ind | 9        | 1  | ind | 9 |             | 1  | ind | 9 |          |
| 29     |     |    |     |          |    |     |   |             |    | 1   |   | 1        |
| 30     |     | 1  |     | 1        |    |     |   | 1           | 1  |     |   | 1        |
| 31     | 1   |    |     | 1        |    |     |   | 1           |    |     |   |          |
| 32     | 2   |    |     | 2        | 1  |     |   | 2           | 1  |     |   | 1        |
| 33     | 2   | 2  |     | 4        |    |     |   | 3           | 1  |     |   | 1        |
| 34     | 2   | 6  | 4   | 12       | 3  | 1   |   | 8           |    |     |   |          |
| 35     | 3   | 6  | 2   | 11       | 2  | 1   |   | 10          |    | 4   |   | 4        |
| 36     | 5   | 14 | 6   | 25       | 3  |     |   | 8           |    | 3   |   | 4        |
| 37     | 8   | 19 | 4   | 31       | 3  |     |   | 7           |    | 2   |   | 2        |
| 38     | 13  | 13 | 7   | 33       | 7  | 2   |   | 16          | 1  | 3   |   | 4        |
| 39     | 10  | 19 | 14  | 43       | 10 | 6   |   | 33          | 1  | 4   |   | 6        |
| 40     | 12  | 30 | 9   | 51       | 19 | 1   |   | 43          |    | 4   |   | 11       |
| 41     | 18  | 46 | 22  | 86       | 20 | 3   |   | 45          | 3  | 4   |   | 8        |
| 42     | 33  | 60 | 22  | 115      | 37 | 8   |   | 73          | 7  | 6   |   | 23       |
| 43     | 43  | 70 | 21  | 134      | 27 | 3   |   | 77          | 8  | 5   |   | 21       |
| 44     | 40  | 66 | 20  | 126      | 29 | 5   |   | 64          | 4  | 13  |   | 23       |
| 45     | 72  | 94 | 22  | 188      | 53 | 12  |   | 115         | 11 | 13  |   | 32       |
| 46     | 79  | 78 | 18  | 175      | 36 | 17  |   | 90          | 5  | 9   |   | 24       |
| 47     | 83  | 90 | 17  | 190      | 59 | 23  |   | 155         | 15 | 13  |   | 43       |
| 48     | 87  | 89 | 8   | 184      | 33 | 15  |   | 98          | 7  | 7   |   | 20       |
| 49     | 70  | 81 | 3   | 154      | 34 | 19  |   | 92          | 13 | 4   |   | 25       |
| 50     | 113 | 72 | 8   | 193      | 26 | 10  |   | 74          | 6  | 3   |   | 23       |
| 51     | 91  | 38 | 2   | 131      | 29 | 12  |   | 81          | 2  | 2   |   | 15       |
| 52     | 98  | 21 | 4   | 123      | 14 | 12  |   | 69          | 4  | 4   |   | 19       |
| 53     | 64  | 7  | 3   | 74       | 11 | 10  |   | 45          | 3  | 2   |   | 9        |
| 54     | 48  | 7  | 1   | 56       | 18 | 3   |   | 49          | 2  | 1   |   | 5        |
| 55     | 17  | 3  | 1   | 21       | 10 | 3   | 1 | 39          |    |     |   | 3        |
| 56     | 17  |    | 1   | 18       | 6  | 4   |   | 30          |    | 1   |   | 3        |
| 57     | 18  | 1  |     | 19       | 1  |     |   | 11          |    | 2   |   | 4        |
| 58     | 12  | 5  |     | 17       | 1  |     |   | 10          |    | 1   |   | 4        |
| 59     | 5   | 1  |     | 6        | 2  | 1   |   | 12          |    | 1   |   | 3        |
| 60     | 4   | 1  |     | 5        |    | 1   |   | 10          |    |     |   | 1        |
| 61     | 5   | 1  |     | 6        | 3  | 2   |   | 9           |    |     |   | 1        |
| 62     | 6   |    |     | 6        |    |     |   | 1           |    |     |   |          |
| 63     | 3   | 1  |     | 4        |    |     |   | 1           |    |     |   |          |
| 64     | 1   |    |     | 1        |    |     |   | 3           |    |     |   |          |
| 65     | 3   |    |     | 3        |    |     |   | 3           |    |     |   | 2        |
| 66     | 2   |    |     | 2        |    |     |   | 4           |    |     |   |          |
| 67     | 1   |    |     | 1        |    |     |   | 1           |    |     |   | 1        |
| 68     |     |    |     |          |    |     |   | 1           |    |     |   |          |
| 69     | 2   |    |     | 2        |    |     |   |             |    |     |   |          |
| 70     |     |    |     |          |    |     |   |             |    |     |   |          |
| 71     | 1   |    |     | 1        |    |     |   | 1           |    |     |   |          |
| 72     |     |    |     |          |    |     |   |             |    |     |   |          |
| 73     | 1   |    |     | 1        |    |     |   |             |    |     |   |          |
| 74     |     |    |     |          |    |     |   |             |    |     |   |          |
| 75     |     |    |     |          |    |     |   |             |    |     |   |          |
| 76     |     |    |     |          |    |     |   |             |    |     |   |          |
| 77     |     |    |     |          |    |     |   | 1           |    |     |   |          |
| 78     | 1   |    |     | 1        |    |     |   | 1           |    |     |   |          |
| 79     | 1   |    |     | 1        |    |     |   |             |    |     |   |          |
| 80     |     |    |     |          |    |     |   | 1           |    |     |   |          |

Total 1097 942 219 2258 497 174 1 1398 92 115 347

Table 6. Length distribution (sampled number of fish) of redfish in 2013 Estonian fisheries in NAFO area. 0-female, 1-male, 9-juvenile, ind-unsexed.

| LG, cm | 3L  |     |      |     | 3L<br>Total | 3M   |      |     | 3M<br>Total | 3N  |     |      | 3N<br>Total | 3O  |     |     | 3O<br>Total |
|--------|-----|-----|------|-----|-------------|------|------|-----|-------------|-----|-----|------|-------------|-----|-----|-----|-------------|
|        | 0   | 1   | ind  | 9   |             | 1    | ind  | 9   |             | 1   | ind | 9    |             | 1   | ind | 9   |             |
| 14     |     |     |      |     |             |      |      | 1   | 1           |     |     | 1    | 1           |     |     |     |             |
| 15     |     |     |      |     |             |      |      | 2   | 2           |     |     |      |             |     |     | 1   | 1           |
| 16     |     |     |      |     |             |      |      | 2   | 2           |     |     |      |             |     |     |     |             |
| 17     |     |     |      | 2   | 2           |      |      | 6   | 2           |     |     |      |             |     |     |     |             |
| 18     |     |     |      | 1   | 1           | 4    |      | 6   | 3           |     |     |      |             | 4   |     | 2   | 6           |
| 19     |     | 1   |      | 1   | 2           | 5    |      | 11  | 1           |     |     | 3    | 3           | 10  | 11  | 1   | 22          |
| 20     | 2   | 3   |      | 3   | 2           | 10   |      | 12  | 19          | 2   | 8   | 16   | 26          | 44  | 43  | 2   | 102         |
| 21     | 5   | 10  |      | 13  | 8           | 36   |      | 30  | 36          |     | 22  | 60   | 95          | 66  | 103 |     | 222         |
| 22     | 17  | 12  |      | 70  | 8           | 107  |      | 31  | 41          |     | 53  | 92   | 172         | 87  | 102 |     | 267         |
| 23     | 15  | 20  |      | 143 | 1           | 179  |      | 78  | 54          |     | 35  | 104  | 168         | 27  | 87  |     | 195         |
| 24     | 14  | 12  |      | 279 |             | 305  |      | 116 | 60          |     | 35  | 76   | 155         | 14  | 37  |     | 89          |
| 25     | 12  | 13  |      | 305 | 1           | 331  |      | 163 | 61          |     | 32  | 77   | 138         | 3   | 15  |     | 40          |
| 26     | 21  | 12  |      | 310 |             | 343  |      | 140 | 69          |     | 25  | 81   | 119         | 2   | 6   |     | 23          |
| 27     | 9   | 8   |      | 241 |             | 258  |      | 132 | 84          |     | 9   | 42   | 70          |     | 4   |     | 10          |
| 28     | 7   | 12  |      | 223 |             | 242  |      | 85  | 88          |     | 2   | 40   | 58          |     |     |     |             |
| 29     | 9   | 3   |      | 132 |             | 144  |      | 50  | 73          |     | 2   | 14   | 25          |     | 2   |     | 6           |
| 30     | 10  | 7   |      | 142 |             | 159  |      | 44  | 89          |     |     | 12   | 17          |     |     |     | 2           |
| 31     | 7   |     |      | 99  |             | 106  |      | 33  | 43          |     |     | 3    | 4           |     |     |     | 1           |
| 32     | 3   | 2   |      | 106 |             | 111  |      | 26  | 44          |     |     | 4    | 5           |     |     |     |             |
| 33     | 3   |     |      | 72  |             | 75   |      | 8   | 21          |     |     | 4    | 4           |     |     |     |             |
| 34     | 5   |     |      | 67  |             | 72   |      | 3   | 22          | 1   |     | 3    | 3           |     |     |     |             |
| 35     | 7   | 1   |      | 49  |             | 57   |      | 13  | 26          |     |     | 2    | 2           |     |     |     | 1           |
| 36     | 3   | 4   |      | 33  |             | 40   |      | 8   | 23          |     |     |      |             |     |     |     |             |
| 37     | 3   | 1   |      | 13  |             | 17   |      | 5   | 23          |     |     |      |             |     |     |     |             |
| 38     | 1   | 1   |      | 6   |             | 8    |      | 6   | 18          |     |     |      |             |     |     |     |             |
| 39     | 2   |     |      | 3   |             | 5    |      | 5   | 11          |     |     |      |             |     |     |     |             |
| 40     | 4   |     |      | 1   |             | 5    |      | 5   | 16          |     |     |      |             |     |     |     |             |
| 41     | 3   |     |      | 2   |             | 5    |      | 6   | 10          |     |     |      |             |     |     |     |             |
| 42     |     |     |      | 1   |             | 1    |      | 1   | 19          |     |     |      |             |     |     |     |             |
| 43     |     |     |      |     |             |      |      |     | 8           |     |     |      |             |     |     |     |             |
| 44     | 2   |     |      | 1   |             | 3    |      | 1   | 6           |     |     |      |             |     |     |     |             |
| 45     | 2   |     |      |     |             | 2    |      | 2   | 3           |     |     |      |             |     |     |     |             |
| 46     | 1   |     |      |     |             | 1    |      |     | 1           |     |     |      |             |     |     |     |             |
| 47     |     |     |      |     |             |      |      |     |             |     |     |      |             |     |     |     |             |
| 48     |     |     |      |     |             |      |      | 2   | 3           |     |     |      |             |     |     |     |             |
| 49     |     |     |      |     |             |      |      |     |             |     |     |      |             |     |     |     |             |
| 50     |     |     |      |     |             |      |      |     |             |     |     |      |             |     |     |     |             |
| 51     |     |     |      |     |             |      |      |     | 1           |     |     |      |             |     |     |     |             |
| 52     |     |     |      |     |             |      |      |     |             |     |     |      |             |     |     |     |             |
| 53     |     |     |      |     |             |      |      | 1   | 1           |     |     |      |             |     |     |     |             |
| 54     |     |     |      |     |             |      |      |     |             |     |     |      |             |     |     |     |             |
| 55     |     |     |      |     |             |      |      |     |             |     |     |      |             |     |     |     |             |
| 56     |     |     |      |     |             |      |      |     |             |     |     |      |             |     |     |     |             |
| 57     |     |     |      |     |             |      |      |     |             |     |     |      |             |     |     |     |             |
| 58     |     |     |      |     |             |      |      | 1   | 1           |     |     |      |             |     |     |     |             |
| Total  | 167 | 122 | 2318 | 20  | 2627        | 1012 | 1000 | 9   | 3011        | 223 | 634 | 1065 | 257         | 413 | 3   | 987 |             |

Table 7. Length distribution (sampled number of fish) of American plaice in 2013 Estonian fisheries in NAFO area. ind-unsexed.

| LG, cm | 3L  | 3N  |
|--------|-----|-----|
|        | ind | ind |
| 22     |     | 2   |
| 23     |     |     |
| 24     |     | 3   |
| 25     |     | 5   |
| 26     |     | 4   |
| 27     |     | 7   |
| 28     |     | 8   |
| 29     |     | 16  |
| 30     |     | 25  |
| 31     | 1   | 25  |
| 32     |     | 41  |
| 33     |     | 32  |
| 34     |     | 47  |
| 35     | 1   | 30  |
| 36     | 2   | 53  |
| 37     | 2   | 42  |
| 38     | 10  | 41  |
| 39     | 9   | 30  |
| 40     | 17  | 36  |
| 41     | 17  | 20  |
| 42     | 8   | 12  |
| 43     | 11  | 12  |
| 44     | 11  | 7   |
| 45     | 11  | 13  |
| 46     | 13  | 6   |
| 47     | 11  | 4   |
| 48     | 10  | 3   |
| 49     | 7   | 2   |
| 50     | 1   | 2   |
| 51     | 3   |     |
| 52     | 1   |     |
| 53     |     | 1   |
| 54     | 1   |     |
| 55     | 1   |     |
| 56     | 3   | 1   |
| 57     | 1   |     |
| 58     |     | 1   |
| 59     |     |     |
| 60     |     | 1   |
| 61     |     |     |
| 62     |     |     |
| 63     |     |     |
| 64     |     |     |
| 65     |     |     |
| 66     |     | 1   |
| Total  | 152 | 533 |

Table 8. Length distribution (sampled number of fish) of yellowtail flounder in 2013 Estonian fisheries in NAFO area. 0-female, 1-male, 9-juvenile, ind-unsexed.

| LG, cm | 3N  |     |      | 3N Total |
|--------|-----|-----|------|----------|
|        | 0   | 1   | ind  | 9        |
| 18     |     |     |      | 1        |
| 19     |     |     |      | 2        |
| 20     |     |     |      | 1        |
| 21     |     |     |      |          |
| 22     |     | 1   |      | 3        |
| 23     | 5   |     |      | 6        |
| 24     | 7   | 2   | 1    |          |
| 25     | 4   | 5   | 1    | 3        |
| 26     | 8   | 7   | 6    |          |
| 27     | 15  | 9   | 17   |          |
| 28     | 13  | 19  | 29   |          |
| 29     | 17  | 15  | 37   |          |
| 30     | 30  | 24  | 75   |          |
| 31     | 28  | 37  | 96   |          |
| 32     | 23  | 23  | 136  |          |
| 33     | 23  | 10  | 140  |          |
| 34     | 18  | 10  | 194  |          |
| 35     | 16  | 8   | 143  |          |
| 36     | 16  | 2   | 161  |          |
| 37     | 15  | 1   | 133  |          |
| 38     | 9   | 1   | 133  |          |
| 39     | 20  |     | 115  |          |
| 40     | 8   | 1   | 90   |          |
| 41     | 6   |     | 67   |          |
| 42     | 5   |     | 52   |          |
| 43     | 4   |     | 34   |          |
| 44     | 3   |     | 24   |          |
| 45     |     |     | 7    |          |
| 46     | 2   |     | 5    |          |
| 47     | 2   |     | 1    |          |
| 48     | 2   |     |      |          |
| 49     | 1   |     | 1    |          |
| 50     | 1   |     | 1    |          |
| 51     |     |     |      |          |
| 52     |     |     |      |          |
| 53     |     |     |      |          |
| 54     |     |     |      |          |
| 55     | 1   |     |      | 1        |
| Total  | 302 | 175 | 1701 | 14       |
|        |     |     |      | 2192     |

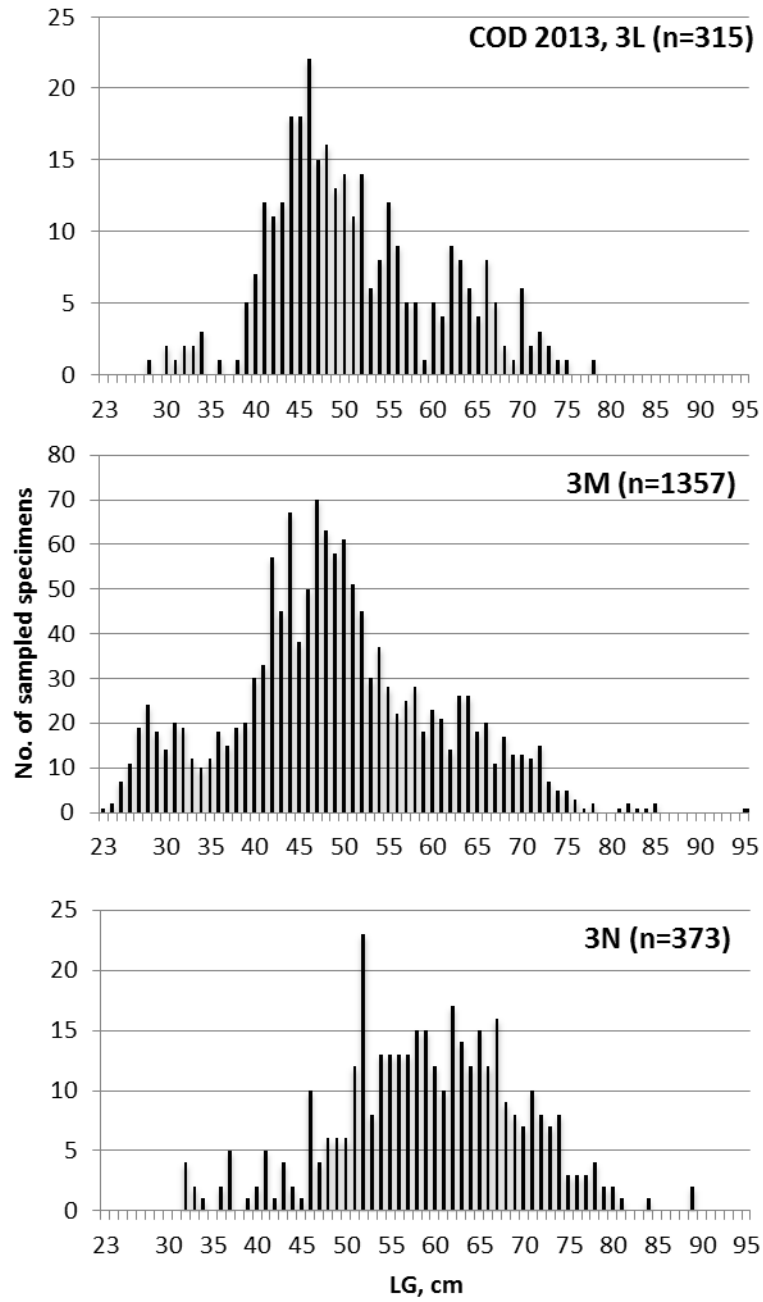


Figure 1. Length distribution (number of sampled specimens) of cod in Div. 3L, 3M and 3N Estonian fisheries in 2013.

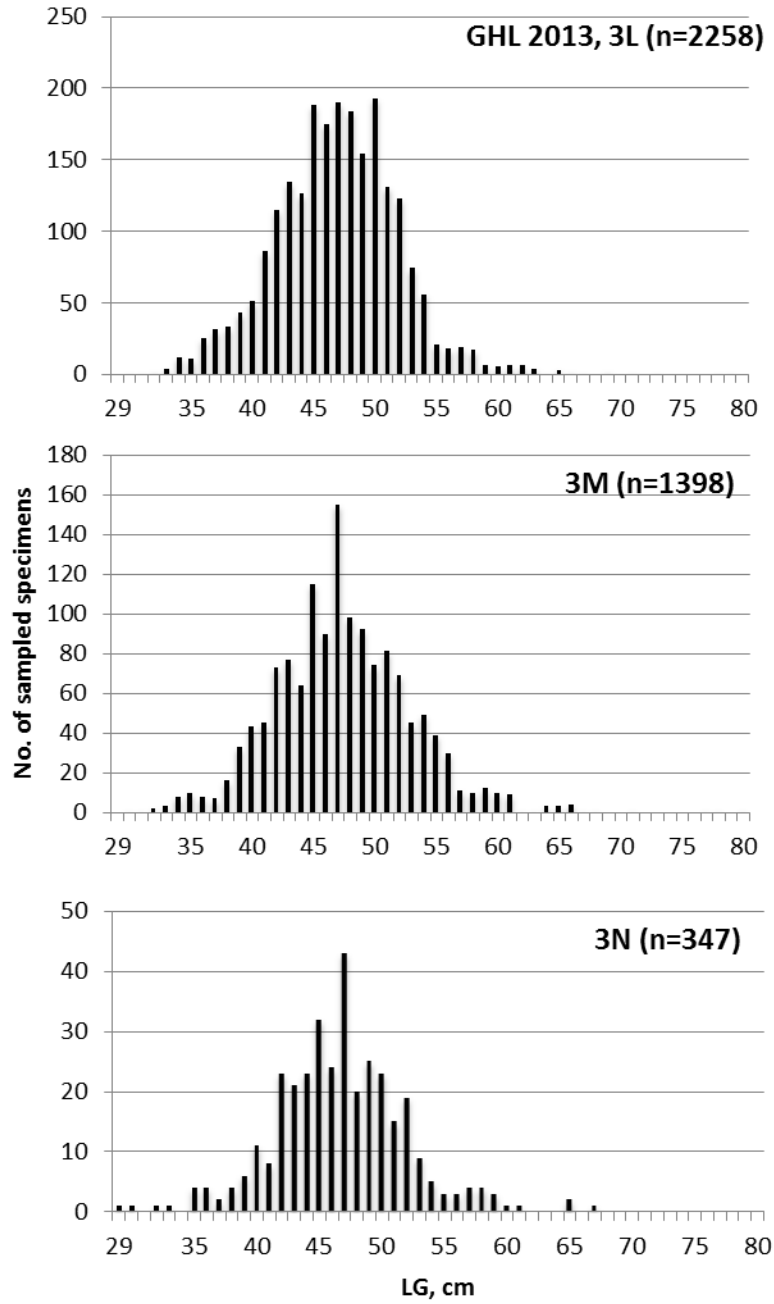


Figure 2. Length distribution (number of sampled specimens) of Greenland halibut in Div. 3L, 3M and 3N Estonian fisheries in 2013.

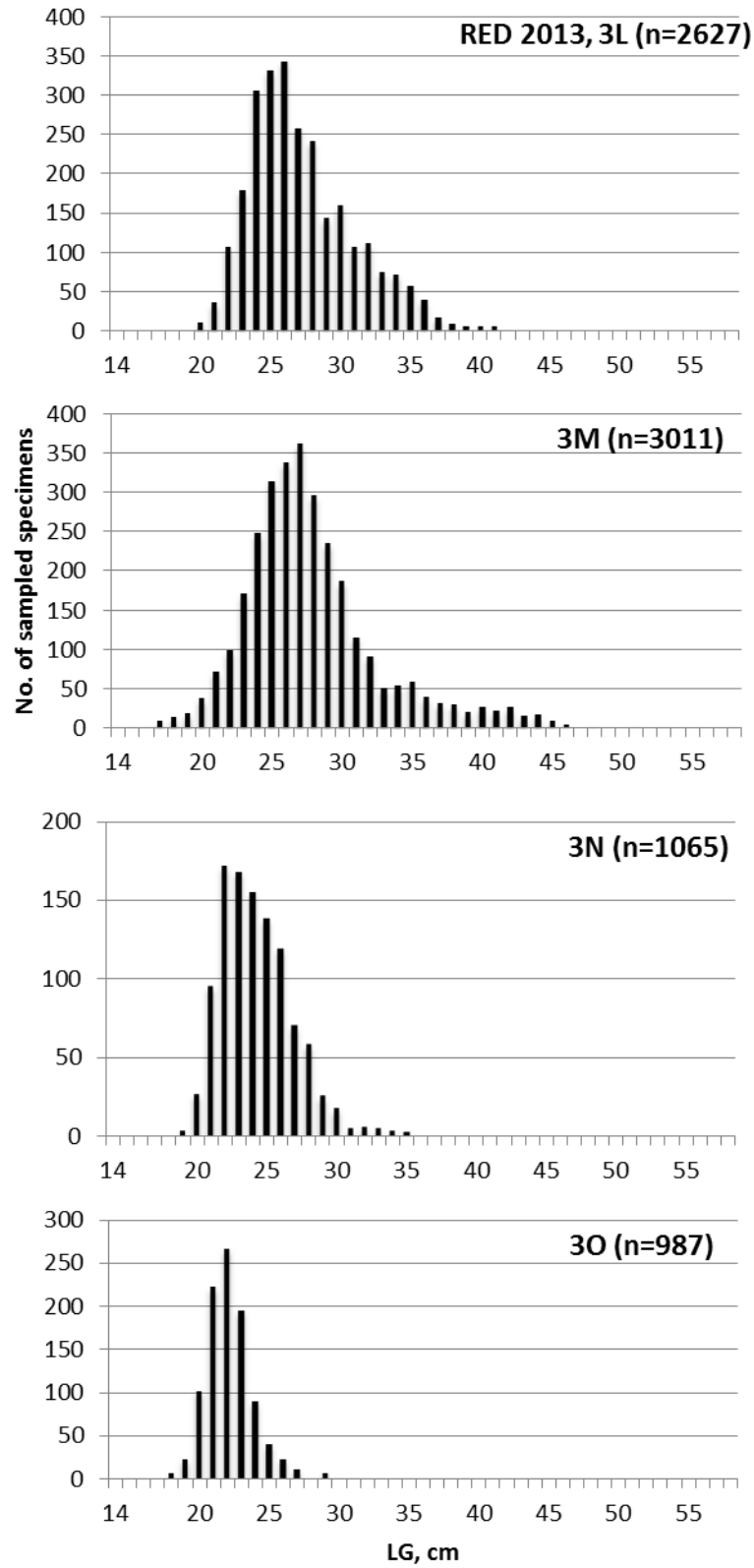


Figure 3. Length distribution (number of sampled specimens) of redfish in Div. 3L, 3M, 3N and 3O Estonian fisheries in 2013.

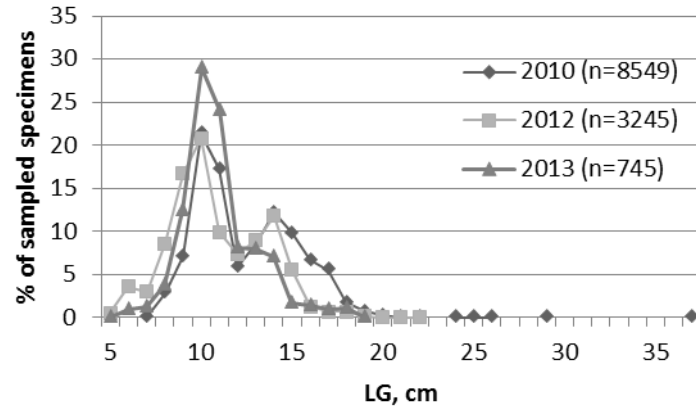


Figure 4. Redfish bycatch length distribution (% of total sampled specimens) in Estonian shrimp fishery in Div 3L in 2010 and 2012-2013.

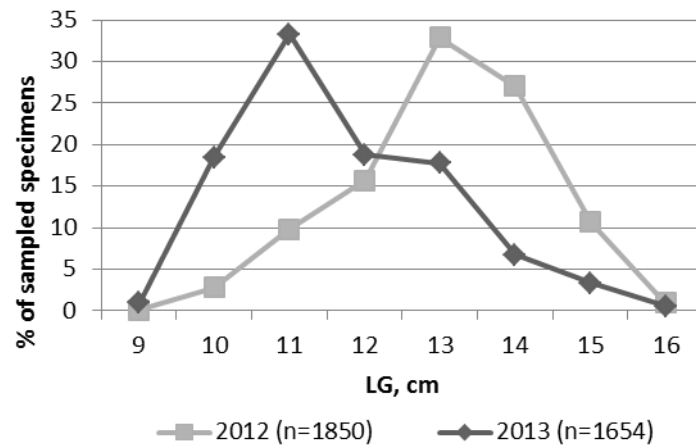


Figure 5. Capelin bycatch length distribution (% of total sampled specimens) in Estonian shrimp fishery in Div 3L in 2012-2013.