

SCIENTIFIC COUNCIL MEETING - SEPTEMBER 1998

**An area swept estimate of the northern shrimp (*Pandalus borealis*)
stock biomass on the Nose of Grand Bank (NAFO Div. 3L) in June 1998**

Árni Nicolajsen

*Fiskirannsóknarstovan, Fisheries Laboratory of the Faroes
Nóatún, P.O.Box 3051, Tórshavn, Faroe Islands*

In 1996 the Faroese Government decided to assess the shrimp stock on the Nose of Grand bank (NAFO Div. 3L) and these investigations continued in 1998. The first four shrimp surveys in this area were carried out in November 1996, February, May-June and August 1997, (Nicolajsen, 1997).

Materials and methods.

In June 1998 a total of 38 stations were selected in a stratified random trawl survey design (Fig. 1). The stations were allotted to the strata proportional to strata area. Stations were in the depth range 100-300 fathoms. Tow duration was 60 minutes and towing went on both day and night. As in the survey in 1996 and 1997 the Faroese commercial shrimp trawler R/T Høgifossur (4400HP) was hired for the operation. A single Angmassalik 3000 shrimp trawl with 40mm meshsize in the codend and 22mm bar spacing in the sorting grade was used.

For each station the density was calculated, (Fig. 2). The catch data were standardized by dividing the catches by area swept, *i.e.* length of tow times width of the trawl. The length of tow was calculated by multiplying towing time with the average towing speed. The width of the trawl was calculated as the average distance between the doors as measured by an acoustic distance measuring device (Scanmar). The average density values were calculated for each strata and multiplied with the strata area and summed for all strata to get the total biomass (Tab. 1).

Results

The result of the total stock biomass calculations was 4583 t (Tab. 1).

Discussion

The stock biomass is 40 % higher than the average 3266 t area swept result based on last years Faroese shrimp survey (Nicolajsen, 1997). The trend in these results are in accordance with the trend in catch rates in the Faroese shrimp fleet (Nicolajsen, 1998).

Reference

NICOLAISEN, Á. 1997. Biomass estimate, length distribution and growth of the shrimp stock on the Nose of the Bank (Div. 3L) in May-Jun 1997. *NAFO SCR Doc.* 97/93. 10p.

Table 1 Area swept assessment of the Nose of Grand Bank (NAFO Div. 3L) shrimp stock biomass for June 1998.

Strata no.	Average density t·km ⁻²	Strata area km ²	Biomass t	Number of stations	Number of squares in strata	Coverage %
3	0.045	772	35	3	9	33
4	0.858	2915	2502	13	34	38
5	1.181	1372	1621	6	16	38
6	0.402	772	310	3	9	33
7	0.090	1286	116	6	15	40
8	0.000	857	0	4	10	40
10	0.000	2229	0	1	26	4
11	0.000	1115	0	2	13	15
Total		11319	4583	38	132	29
Weighted average	0.405					

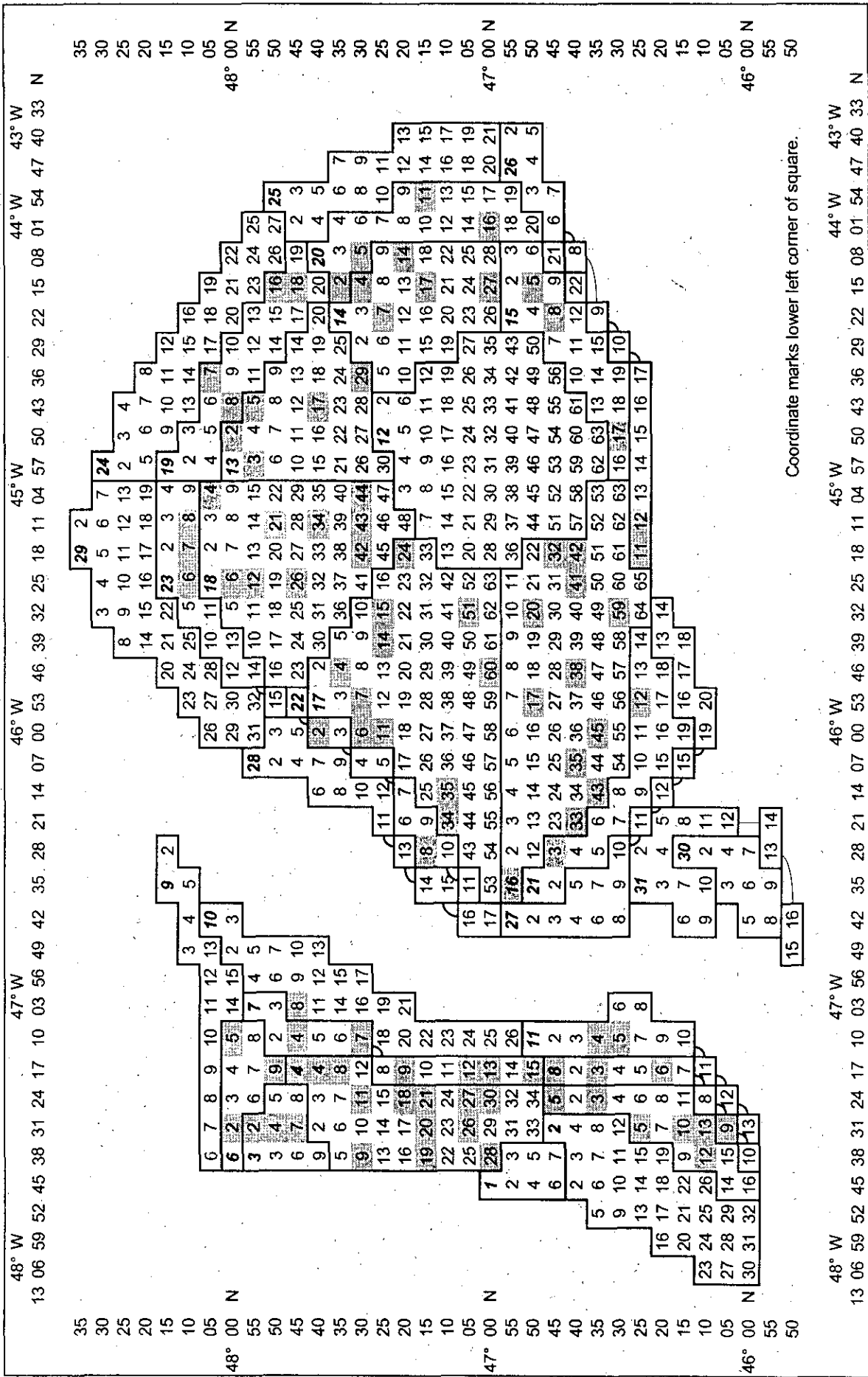


Figure 1 Map of Flemish Cap and Grand Bank showing design of survey with tow stations (shaded). Grid squares are 5 nm.

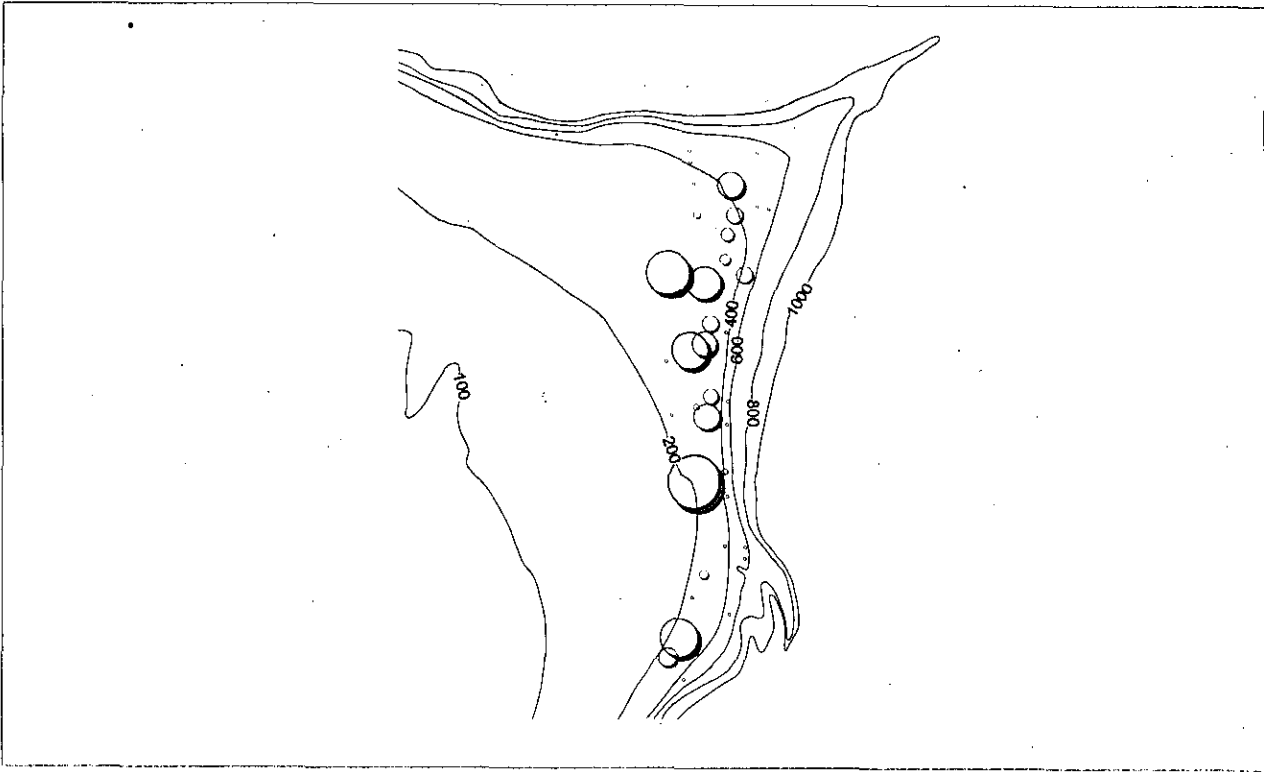


Figure 2 Density plot of shrimp on the Nose of the Grand Bank from survey in June 1998. The largest circles represent approx. $4g \cdot m^{-2}$. Depth curves in meters.