

## 10.2 Krill sampling by plankton net attached to the trawl

by A. Benzik and A. Dolgov

### Background and aim of investigations

Euphausiids are an abundant group of planktonic invertebrates, which play important role in trophic chains in the Barents Sea ecosystem (Drobysheva, 1994; Anon., 1996).

Since 1950s PINRO have conducted annual survey of euphausiids in the Barents Sea during Russian autumn-winter survey in October-December. Distribution, abundance, species and length compositions of euphausiids are annually estimated by PINRO. Based on these data, a review of their populations state and a forecast for the next year are conducted to evaluate feeding conditions for commercially important fishes in the Barents Sea.

To evaluate the possibility to estimate euphausiids stocks in different seasons, at the March meeting 2014 PINRO and IMR have agreed to conduct the joint investigations of euphausiids in the ecosystem survey (August-September 2014), Russian autumn-winter survey (October-December 2014) and in the Joint Norwegian-Russian winter survey (February-March 2015) onboard Russian and Norwegian vessels by standard sampling gear (the plankton net attached to the bottom trawl net).

### Methods

According these agreements, euphausiids sampling were conducted in the ecosystem survey 2014. PINRO scientists Aleksander Benzik and Tatiana Prokhorova provided methodical help in using of the trawl net and collection of samples onboard Norwegian research vessels.

Euphausiid (macro plankton) sampling was conducted according traditional methods used in PINRO (Anon., 2004). The trawl net (net size № 40, diameter of net opening - 50 cm) was used as sampling gear. The plankton net was attached to mid of the head line of bottom or pelagic trawl (Figure 10.2.1, 10.2.2 and 10.2.3).

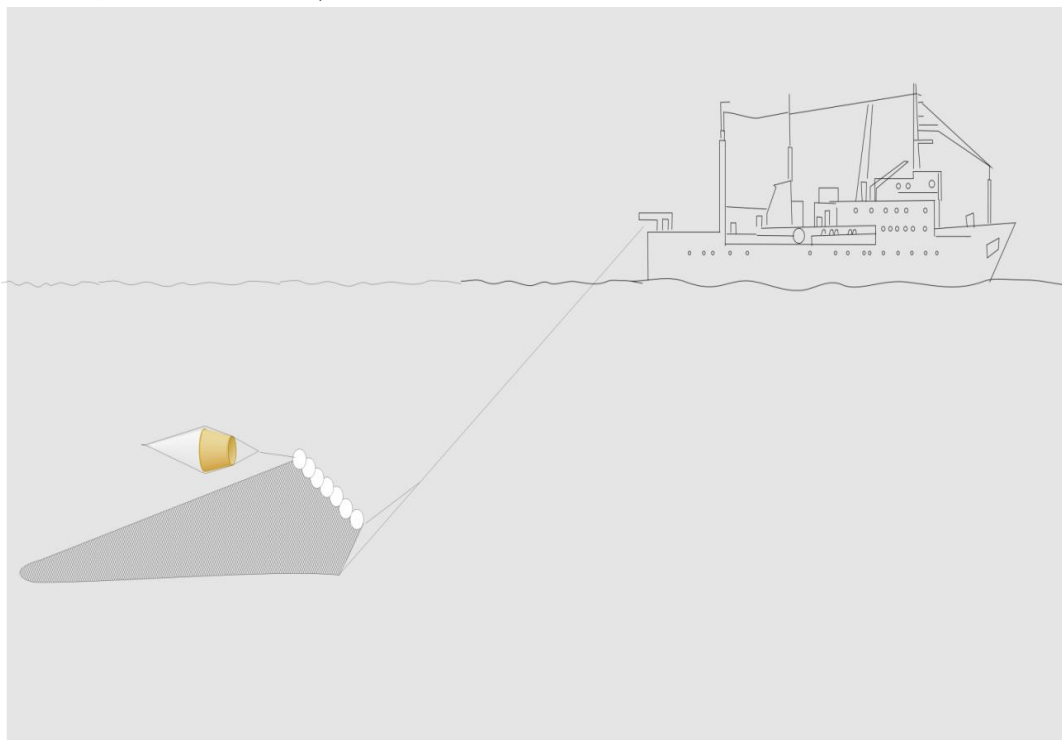


Figure 10.2.1 – The plankton net attached to the bottom trawl



Figure 10.2.2. Plankton net attached to the bottom trawl.

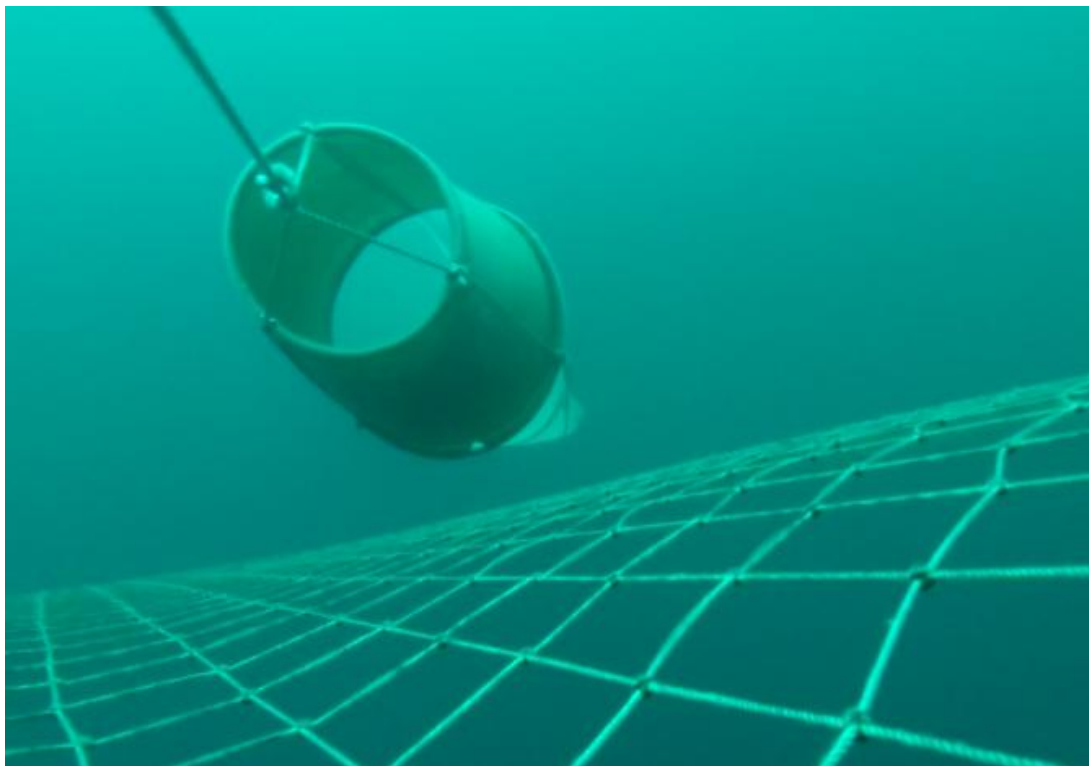


Figure 10.2.3. Underwater picture of plankton net attached to the pelagic trawl

During work on R/V G.O.Sars underwater video observations were conducted to evaluate possible effect of pelagic trawl geometry. Underwater records have shown that plankton net attached to the pelagic trawl not affected trawl geometry.

## Results

Totally 292 samples were collected onboard of 3 vessels (R/V Vilnius, G.O. Sars and H.Hanssen), including 250 samples taking in the bottom layer and 42 –taking in the pelagic layer. The map of collected samples from the bottom and pelagic trawls are presented in Figure 10.2.4 and 10.2.5, respectively. Macro plankton samples were fixed in plastic boxes by 10 % formalin. Processing of collected samples will be done according to the standard methods in the lab by specialist of “Trophology” department in PINRO .

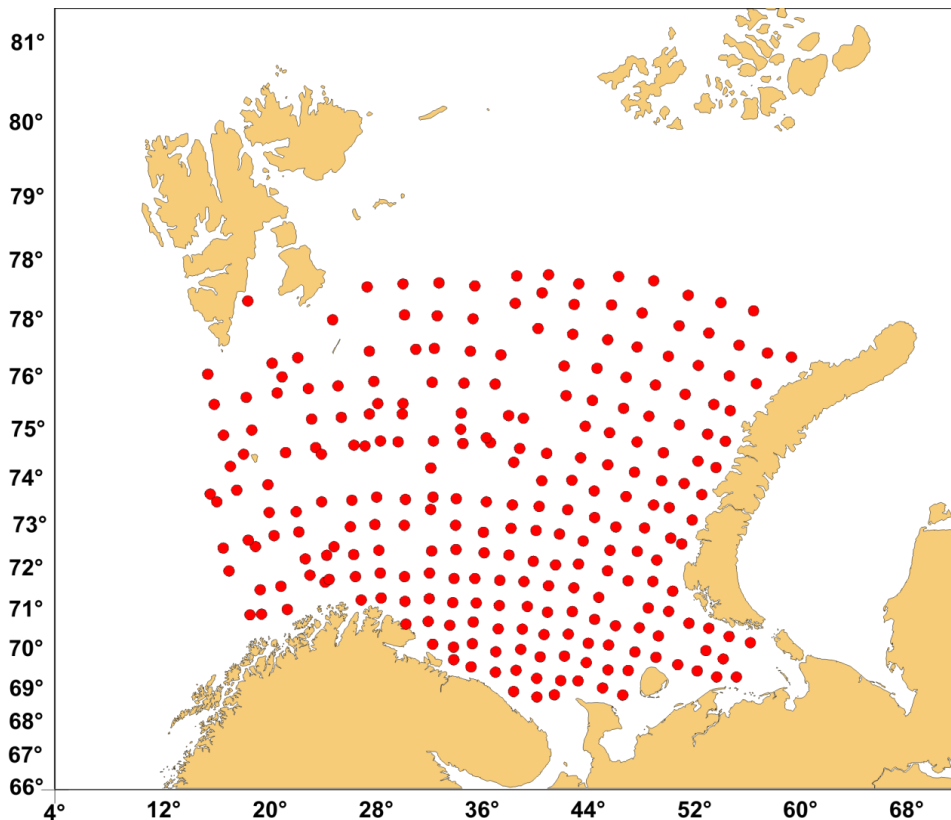


Figure 10.2.4. Macro plankton samples collected by plankton net attached to the bottom trawl.

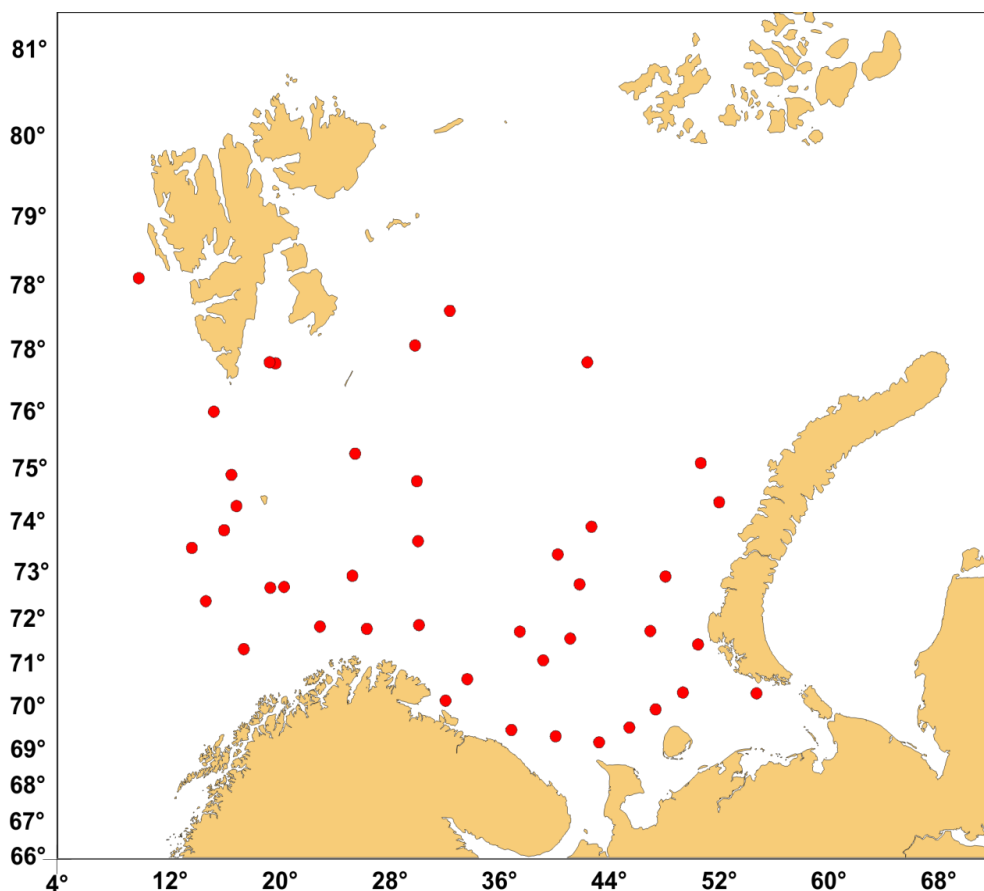


Figure 10.2.5. Macro plankton samples collected by plankton net attached to the pelagic trawl.

Comparison of data on euphausiids will allow to choose new season for estimation of euphausiid stock in case if Russian autumn-winter survey will stopped or shifted to other seasons in framework of optimization of the joint Russian-Norwegian sampling strategy in the Barents Sea. In addition, comparison of different plankton nets used in PINRO (trawl net) and IMR (WP2, pelagic trawl) will be done to evaluate its catchability of euphausiids.

#### References:

Anon. 1996. Annual distribution of euphausiid crustaceans – prey of commercially important fishes of the Barents Sea (1981-1995) (reference materials). Murmansk, PINRO Press. 27 pp. (in Russian).

Anon., 2004. Investigations of fisheries water ecosystems, sampling and processing of data on water biological resources, technics and technology of their catch and production. Vol. 1. Instructions and methodic recommendations on sampling and processing of biological information in the seas of the European North and North Atlantic / PINRO. 2<sup>nd</sup> edition, corrected and expanded. – Moscow, VNIRO Press. 299 pp. (in Russian)

Drobysheva S.S. 1994. Euphausiids of the Barents Sea and their role in formatin of fisheries biological production. Murmansk, PINRO Press. 139 pp. (in Russian)