

## **10.4. Special investigation of 0-group cod (*Gadus morhua* L)**

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### **Aim of investigations**

The sampling of 0-group cod was part of a larger project where we study population genetic structure of Northeast Arctic cod and its connectivity to coastal cod along the Norwegian coast.

In two years we have collected samples of cod from the Barents Sea (Barents Sea winter survey, ecosystem survey), spawning stock from the Norwegian coast (from Finnmark to Lofoten) and the juvenile cod from the Barents Sea (the ecosystem survey). By collecting cod of all age groups and sizes we will study if there is any sub-structuring within Northeast Arctic cod from the Barents Sea.

Previous investigations of landings of gonads (Sundby & Nakken 2008), modeling studies (Vikebø 2007) and genetic studies (Skarstein and Fevolden 2007, Dahle 1992) have indicated such sub-structuring. In addition the typing of cod otoliths into coastal cod and Northeast arctic cod, show that some coastal cod migrate way into the Barents Sea. We wanted know the possible level of this possible invasion.

So the overall aim of the ecosystem survey was to collect 0-group cod covering the Barents Sea and Svalbard to study the genetic structure. This project is closely connected to a similar cod project managed by VNIRO.

### **Method**

Labeled boxes with 2 ml tubes filled with ethanol was stored on board all vessels in 2011 and 2012. 0-group cod was collected from all over the Barents Seas in addition to Svaldbard in two years (2x500 cod). In 2012 the collection of juveniles was coordinated with University of Bergen who collected the whole fish for morphological studies and for more detailed studies of the juveniles' otoliths to identify time for settling of cod.

## **Procedure**

Gill tissue was collected from the fish immediately after the catch came onboard. It was important that the gill tissue was as fresh when collected, to make sure we would get high quality DNA for the genetic analysis. –

## **Data & Results**

The samples are in the process of being analysed and so no results are available yet. We can report though, that the quality of the DNA was very good.

## **Plans for future surveys**

In 2013 we will change focus of the sampling of fish. Then we plan to collect samples of other important fish species for similar studies. The focus next year will be on capelin (*Mallotus villosus*) and polar cod (*Boreogadus saida*), redfishes *Sebastes* spp, Greenland halibut (*Reinhardtius hippoglossoides*).