

Working Document No. 21 to the  
Arctic Fisheries Working Group  
16 – 25 April 2002

# **OBSERVER PROGRAM FOR JUVENILE NORTHEAST ARCTIC SAITHE**

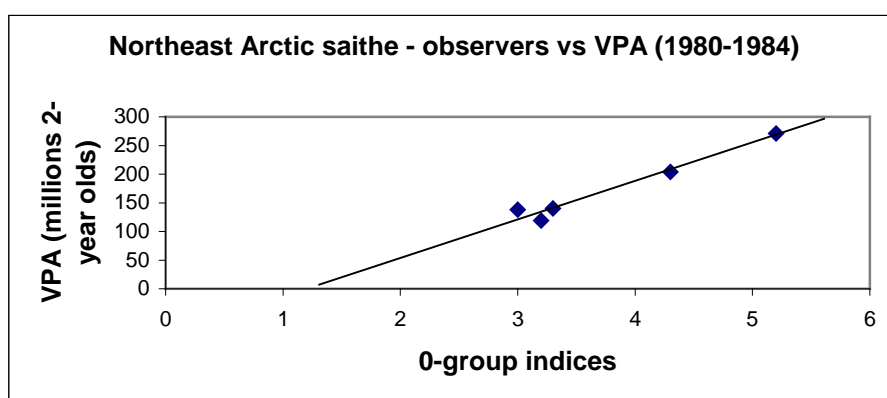
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## The observer program

One of the main problems in the stock projections for Northeast Arctic saithe is the lack of information on the strength of recruiting year classes before they enter the fishery or become fully available for standard scientific surveys. The problem is international and arises because saithe lives in shallow coastal waters the first years. In the 1980s an observer program with saithe fishermen living at places where it was easy to observe juvenile saithe along the shore was tried. But the volunteer observers little by little stopped to send information and the program was ended.

Later, however, the VPA-analysis showed that the observations had a quite good fit to the year class strength 2-3 years later when the fish recruited to the fishery:



The Institute of Marine Research (IMR) in Bergen therefore decided to restart the observe program and contacted the Norwegian Fishermen's Association and the Directorate of Fisheries' regional offices to get in contact with potential observers. The tasks of the observers are:

- Make monthly observations and report to IMR
- The juvenile saithe should be classified on a scale from 0 to 10

Record strong	10
Very strong	9
Strong	8
Clearly above average	7
Somewhat above average	6
Average	5
Somewhat below average	4
Clearly below average	3
Weak	2
Very weak	1
Practically no 0-goup	0

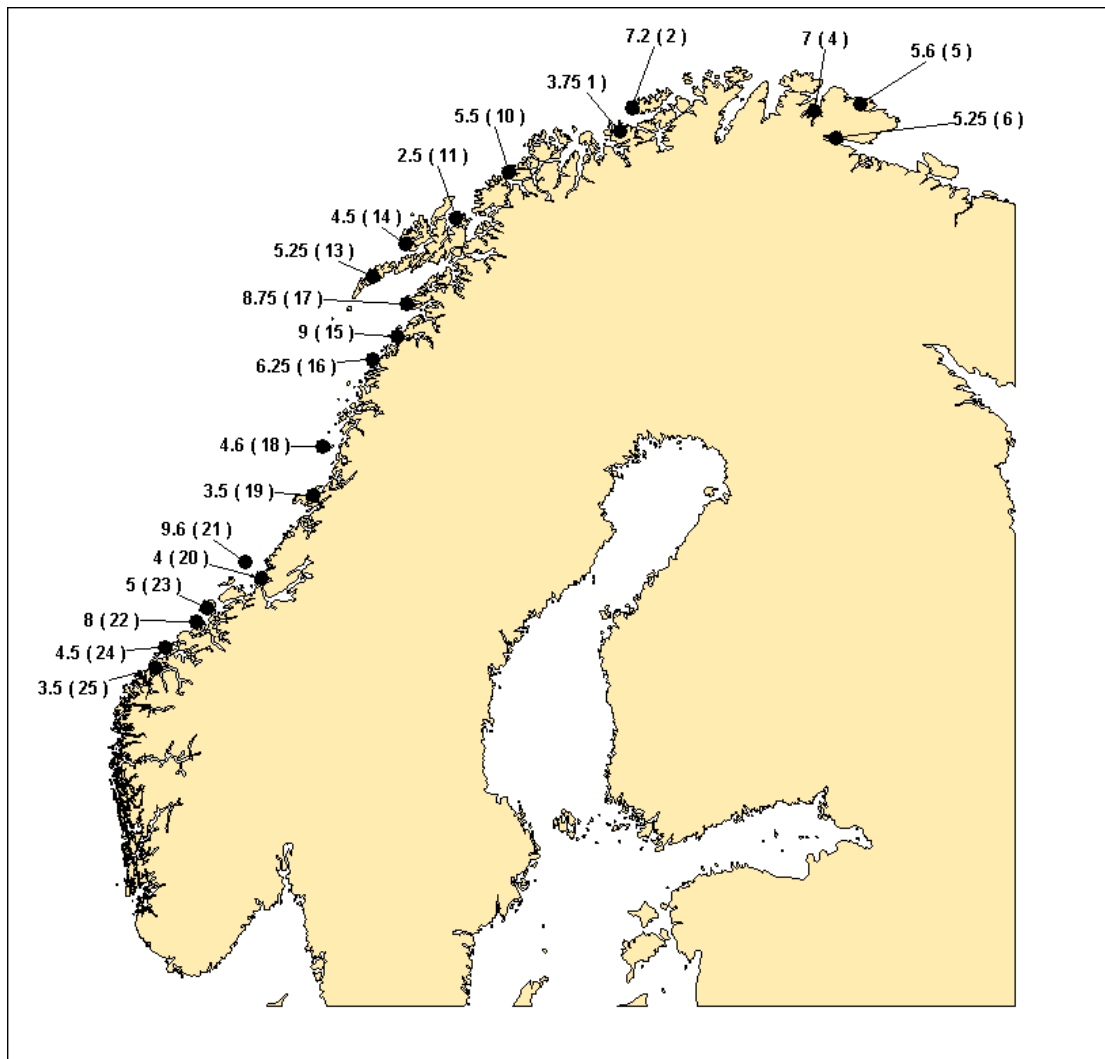
- If possible, make length measurements of the juveniles

The program started summer 2000 with 25 observers distributed along the Norwegian coast from 62° N to the Varanger fjord. The tasks have been extended to, if possible, split the 0-, 1- and 2-group and make separate classifications and length measurements.

## Preliminary results

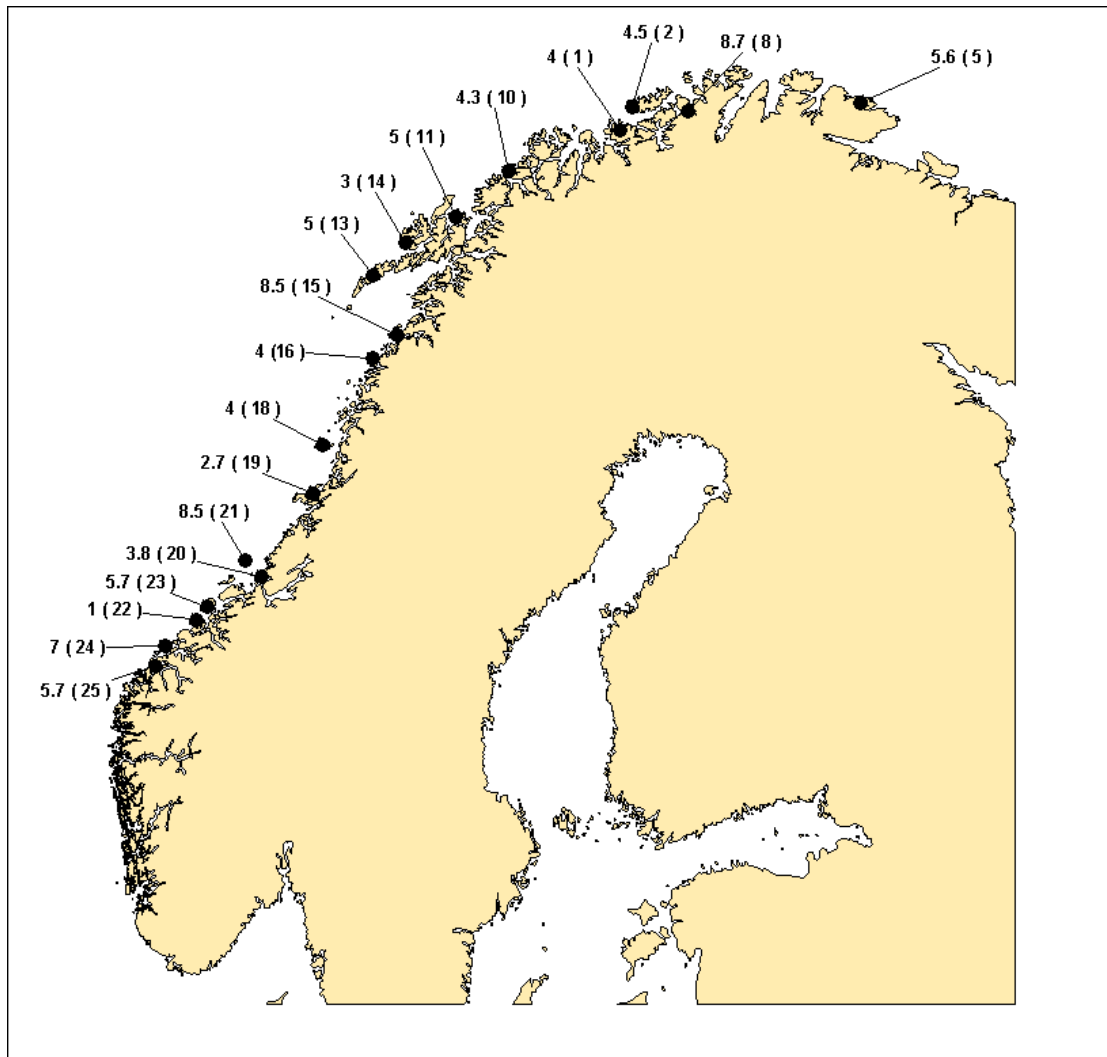
The program has now been running for two 0-group seasons and some preliminary results are available.

The geographical distribution of the mean 0-group observations in 2000 are shown in the next figure (observer number in parenthesis), with the monthly observations of the different observers in the text table below:



2000		Observer-number																								
Month		1	2	4	5	6	10	11	13	14	15	16	17	18	19	20	21	22	23	24	25					
6																										
7																										
8			8	7	7	5	7			2		8		5	3		9		5	4						
9		2	8	7	7	7		0	5	4	9	8	8	5	3	5	9		6		4					
10			6	6		7	6	5		7		9	5	9	5		4	10		4	5					
11			4	6		7	3	5	5	7	4	9	4	9	4	3	2	10			5					
12			3	8		0		5		2	8	9		9	4	5	5	10	8		4	3				

The next map and table presents the corresponding 0-group observations in 2001:



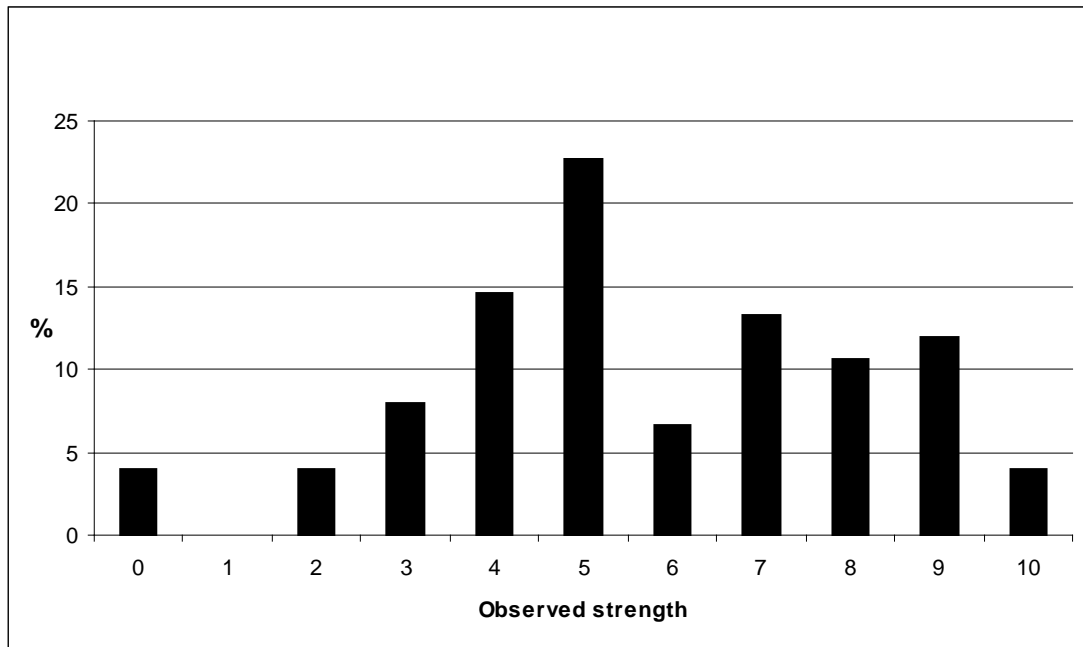
2001		Observer-number																	
Month	1	2	5	8	10	11	13	14	15	16	18	19	20	21	22	23	24	25	
6	0		0	6	1		0	3			0	3	0	0			7	4	
7		5			3		2	3				4	2	0	9	1		7	5
8	3	4	5	10	4		2		8		4	2	4	9					8
9	5	4	5	10	5		7	3	8	4	4	3	4	9		6			
10			5		6		8	2	9		4	2	5	8					
11	4	5	7		7	5	8		9		4	4	6	8		7			
12			6				8	4	9		4	0		8		4			

In 2000 the observer programme was first established in month 8 (August), while the 2001 observations show that the 0-group starts to show up inshore already in June. From August and onwards there seems to be little variance in the observers evaluation of the year class strength from month to month.

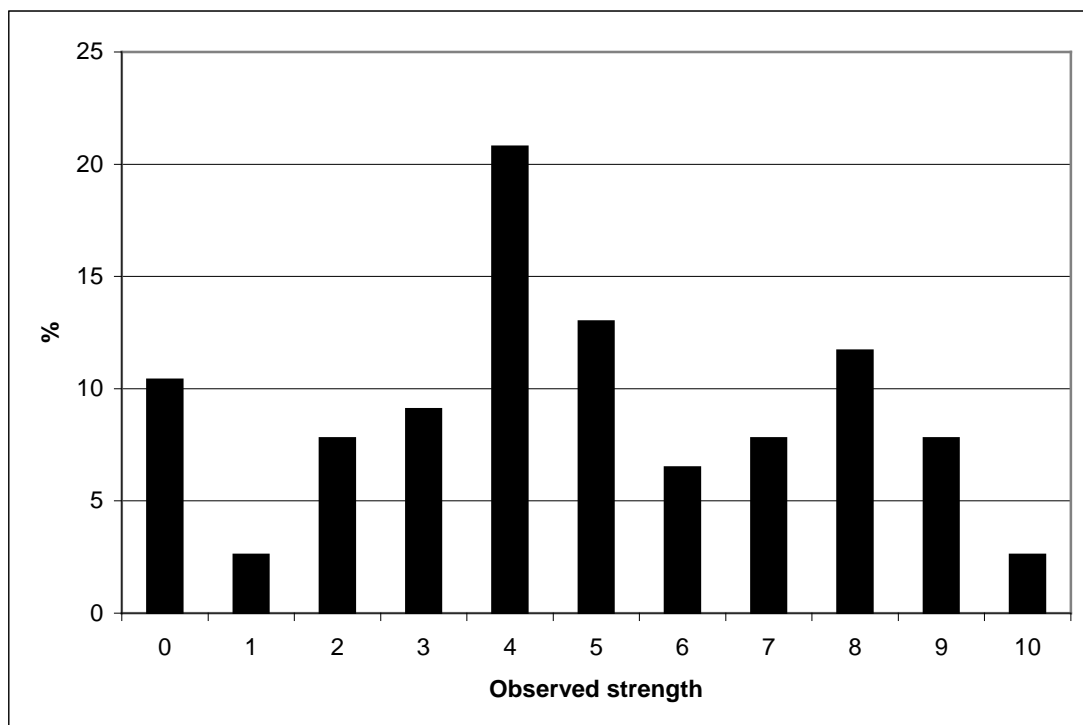
The distribution patterns seem to be quite similar in the two years, with low and high observations in the same places both years and apart from that no clear trends, neither within years nor between the two years. The distribution of the 1- and 2-group in 2001

showed the same patters as the 0-group distributions. All together it seems as the saithe is relatively stationary after has settled along the coast in July-August and the two first years of living.

The next figure presents the distribution (%) of different 0-group classifications in 2000. The all over mean was 5.7, i.e. a little above average strength.



In 2001 the mean was 5.1, and distribution was quite similar to the previous year:



In 2001 the mean strength of the 2000-year class (1-group) was 6.0 compared to 5.7 in 2000. The mean strength of the 1999-year class (2-group) was also 6.0, i.e. somewhat above average strength. In the acoustic saithe survey October 2001 the 1999 year class was partly available and also here showed somewhat above average strength.

The program will, however, have to run for at least 4-5 more years before the observed year class strengths can be calibrated to XSA-estimates of recruitment in order to make prognosis of recruitment based on the observations.