

Cruise number 2004606

## Herring larvae survey 2004

**Main objective: Calculate the distribution and abundance of herring larvae and other fish larvae, take hydrography, nutrients, chlorophyll and zooplankton measurements.**

Crew: Julio Erices, Karsten Hansen, Erling Kåre Stenevik (cruise leader), Laura Rey og Geir Landa

The larval survey in 2004 was carried out with R/V “Håkon Mosby” during the period 1-12 April. The survey started at Fugløya (70°N) and continued along the Norwegian shelf south to Stad (62°N). On a previous survey the area south of Stad had been covered, but no herring larvae were found in this area. High concentrations of herring larvae were found in the whole area north of Stad. Most of the larvae were in the first post yolk sac stage and the mean length was 12.6 mm. This is more than 2 mm less than last year. The number of larvae was, however, much higher than last year, and a larger number has only been recorded once, in 1997. Like the previous year a high proportion of the larvae were found in the northern part of the investigated area. The total number of larvae was estimated to be  $56.4 \cdot 10^{12}$ . Also a record high number of saith larvae were found north of Stad  $2.1 \cdot 10^{12}$  (Tabel 2).

Tabel 1. The total number of herring larvae found on the Norwegian shelf during the period 1981-2003 in billions ( $10^{12}$ ).

| Year | Index 1 | Index 2 | Year | Index 1 | Index 2 |
|------|---------|---------|------|---------|---------|
| 1981 | 0.3     |         | 1993 | 24.7    | 78.0    |
| 1982 | 0.7     |         | 1994 | 19.5    | 48.6    |
| 1983 | 2.5     |         | 1995 | 18.2    | 36.3    |
| 1984 | 1.4     |         | 1996 | 27.7    | 81.7    |
| 1985 | 2.3     |         | 1997 | 66.6    | 147.5   |
| 1986 | 1.0     |         | 1998 | 42.4    | 138.6   |
| 1987 | 1.3     | 4.0     | 1999 | 19.9    | 73.0    |
| 1988 | 9.2     | 25.5    | 2000 | 19.8    | 127.5   |
| 1989 | 13.4    | 28.7    | 2001 | 40.7    | 131.9   |
| 1990 | 18.3    | 29.2    | 2002 | 27.1    | 113.9   |
| 1991 | 8.6     | 23.5    | 2003 | 3.7     | 18.9    |
| 1992 | 6.3     | 27.8    | 2004 | 56.4    | 175.7   |

Index 1. The total number of herring larvae found during the cruise.

Index 2. Back-calculated number of newly hatched larvae with 10% daily mortality.

The larval age is estimated from the duration of the yolk sac stages and the size of the larvae.

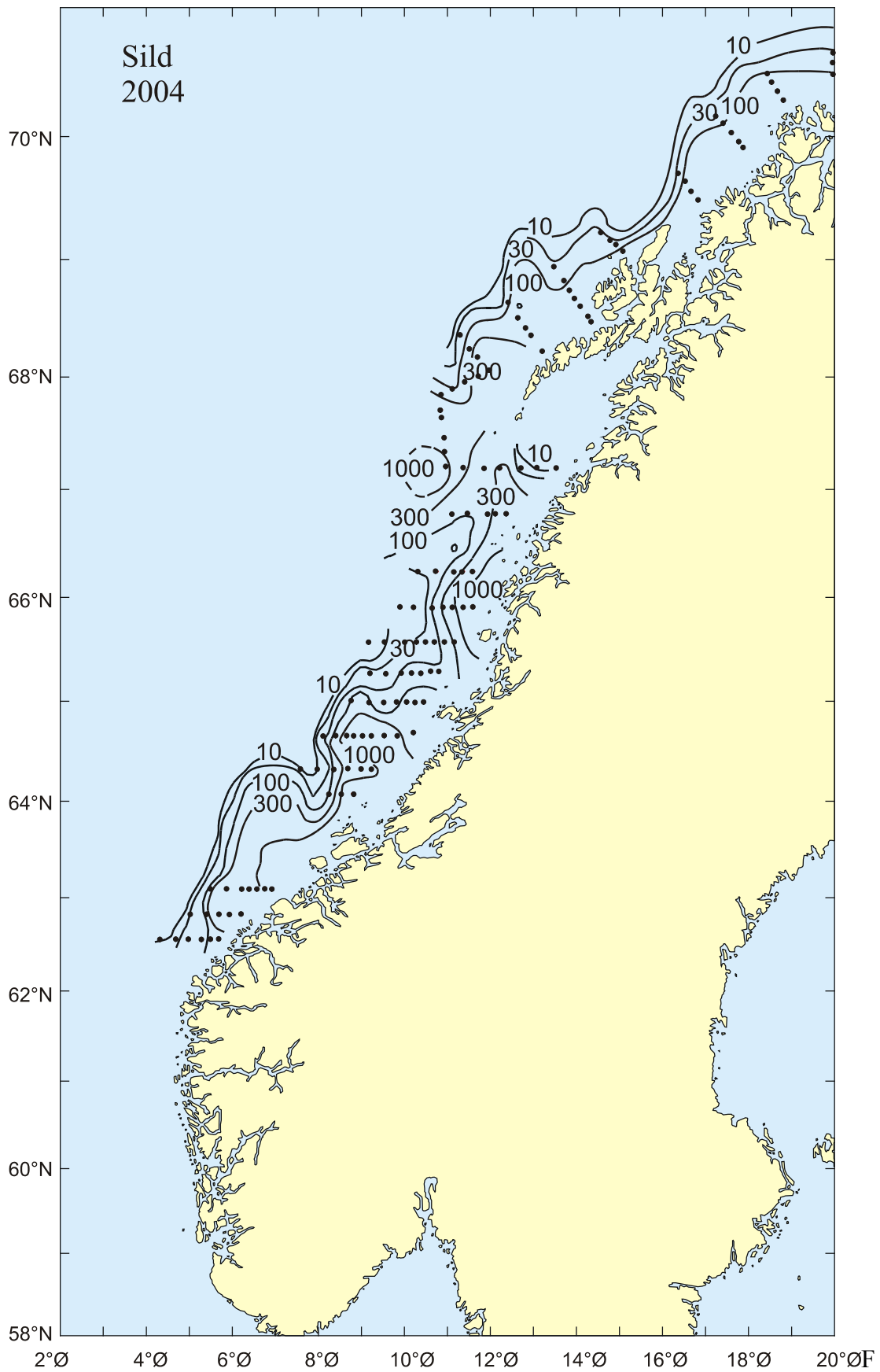


Fig. 1. Distribution and abundance of herring larvae (all stages) on the continental shelf from 62°-70° N in April 2004.

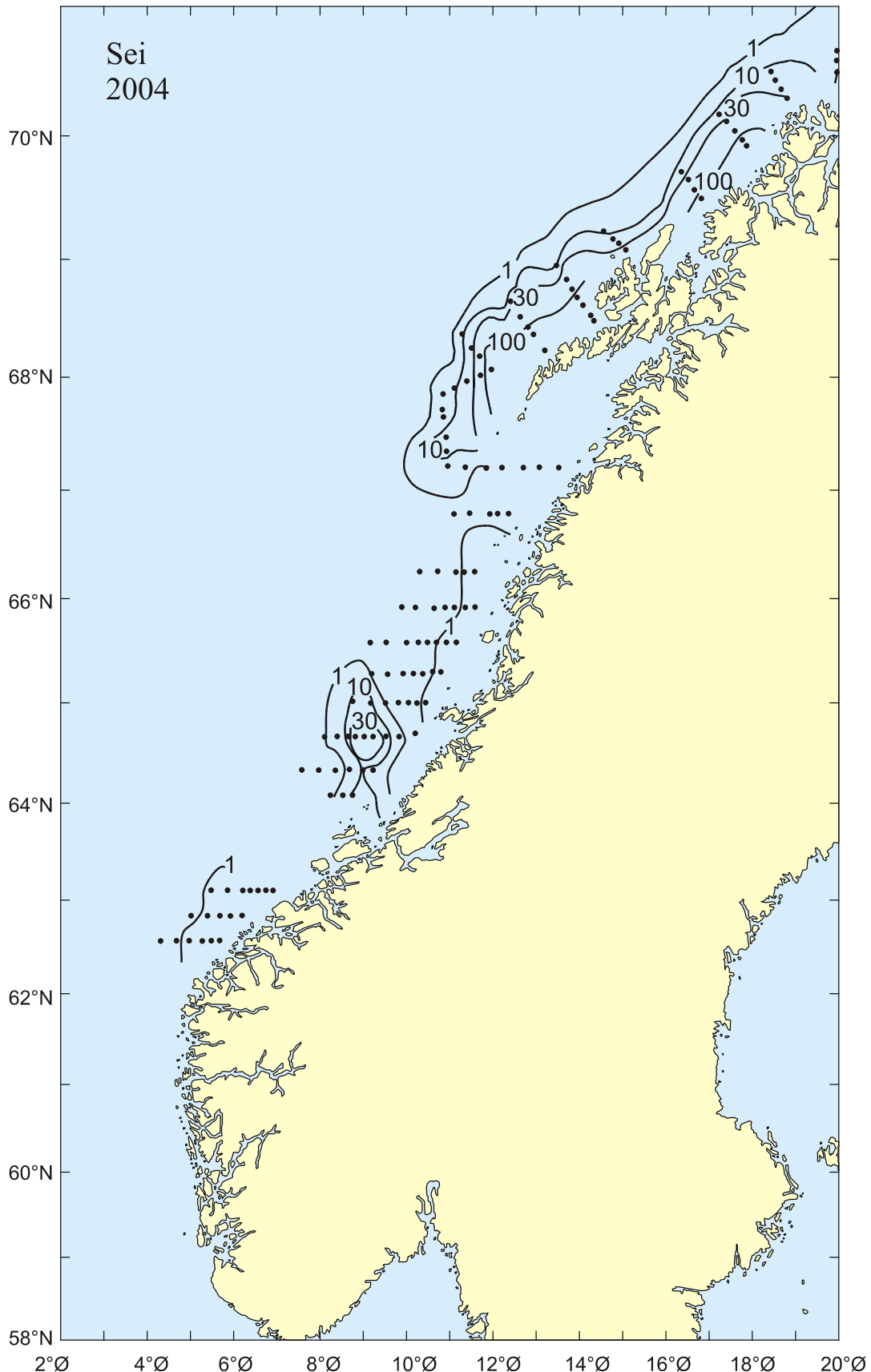


Fig. 2. Distribution and abundance of saith larvae on the continental shelf from 62°-70° N in April 2004.

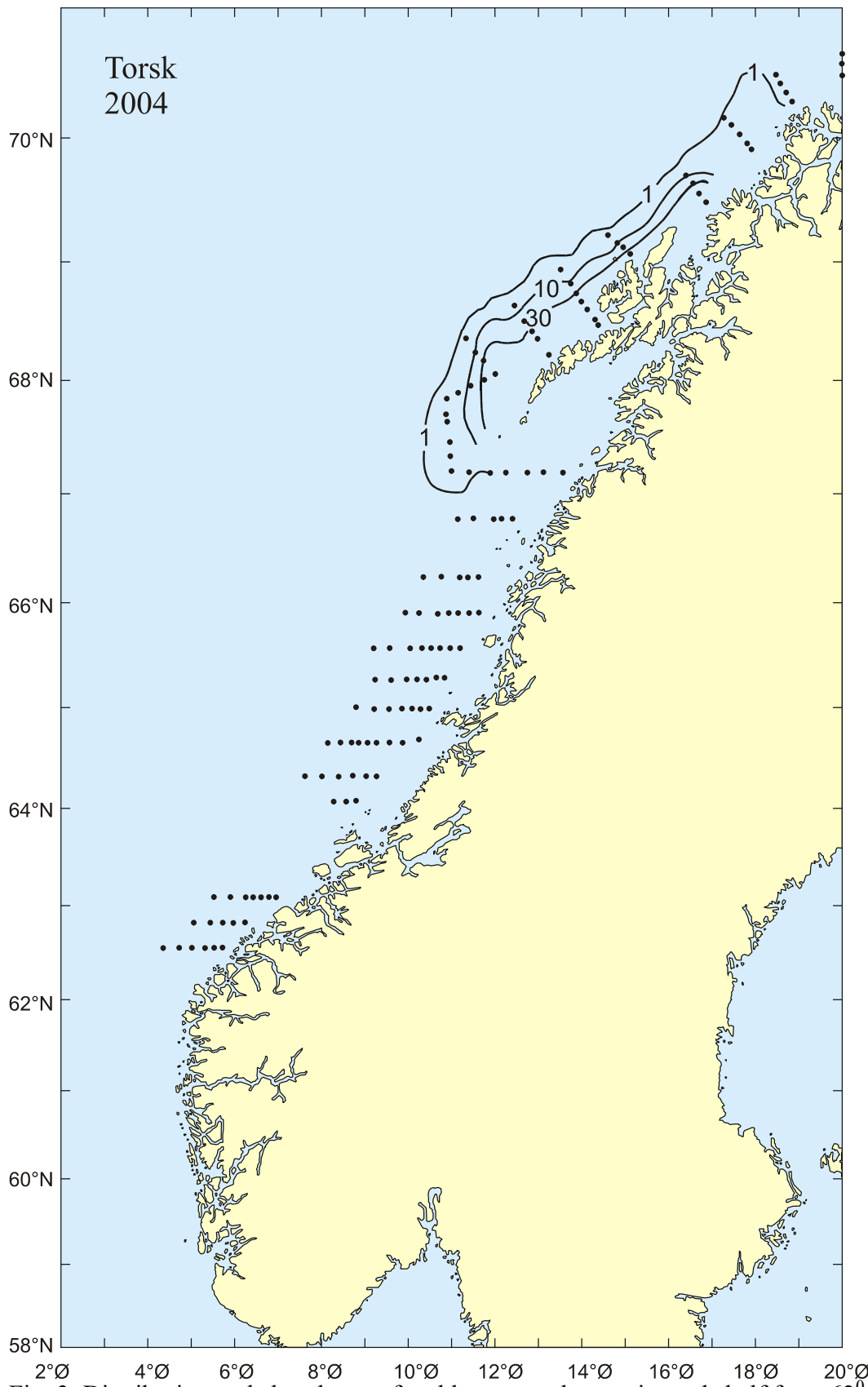


Fig. 3. Distribution and abundance of cod larvae on the continental shelf from 62°-70° N in April 2004.

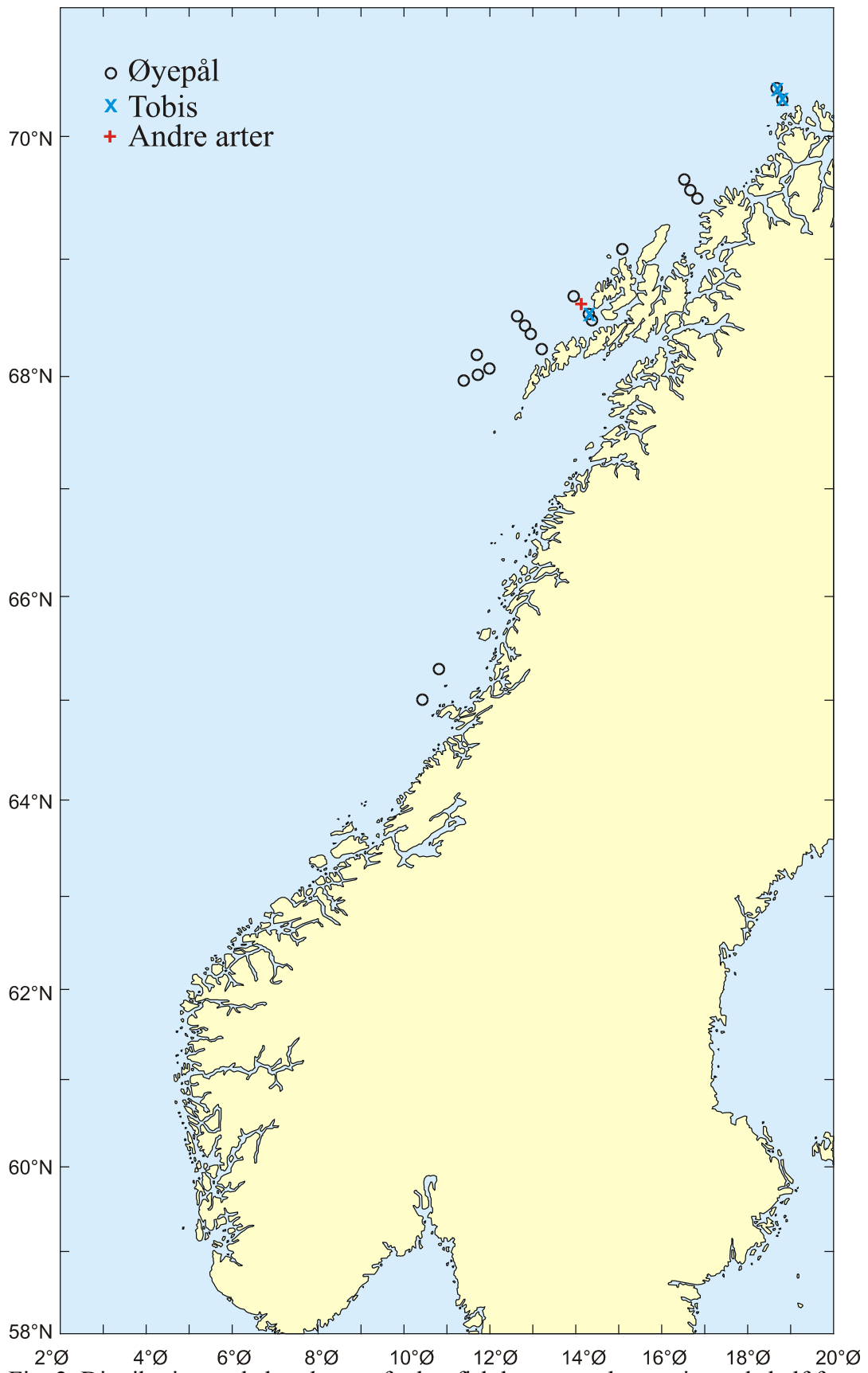


Fig. 2. Distribution and abundance of other fish larvae on the continental shelf from 62°-70° N in April 2004.

Tabel 2. Number of saith larvae in billions on the Norwegian shelf in April 2004.

| År   | Total | Nord for 62 <sup>0</sup> N | Sør for 62 <sup>0</sup> N | Andel (%) sør for 62 <sup>0</sup> N |
|------|-------|----------------------------|---------------------------|-------------------------------------|
| 1996 | 401   | 344                        | 57                        | 14.2                                |
| 1997 | 2     | 2                          | 0                         | 0                                   |
| 1998 | 152   | 146                        | 6                         | 4.0                                 |
| 1999 | 414   | 360                        | 54                        | 13.0                                |
| 2000 | 244   | 81                         | 163                       | 66.8                                |
| 2001 | 277   | 228                        | 49                        | 17.7                                |
| 2002 | 553   | 442                        | 111                       | 20.1                                |
| 2003 | 1191  | 1165                       | 33                        | 2.8                                 |
| 2004 | 2135  | 2135                       | 0                         | 0                                   |

Bergen  
19. August 2004  
Petter Fossum