

## Data from scientific surveys conducted by IFREMER

Jean-Claude Mahé and Michel Bertignac – Ifremer STH Lorient-Brest

### *RESSGASC surveys from 1985 to 2002*

RESSGASC surveys were designed to estimate hake discards in the Bay of Biscay Nephrops fishery and therefore covered only areas frequented by fishermen. As can be seen in figure 1, the survey coverage is not sufficient to provide relevant information on relative abundance of juveniles and adults hakes in and out of the Box. Therefore, this data was not used.

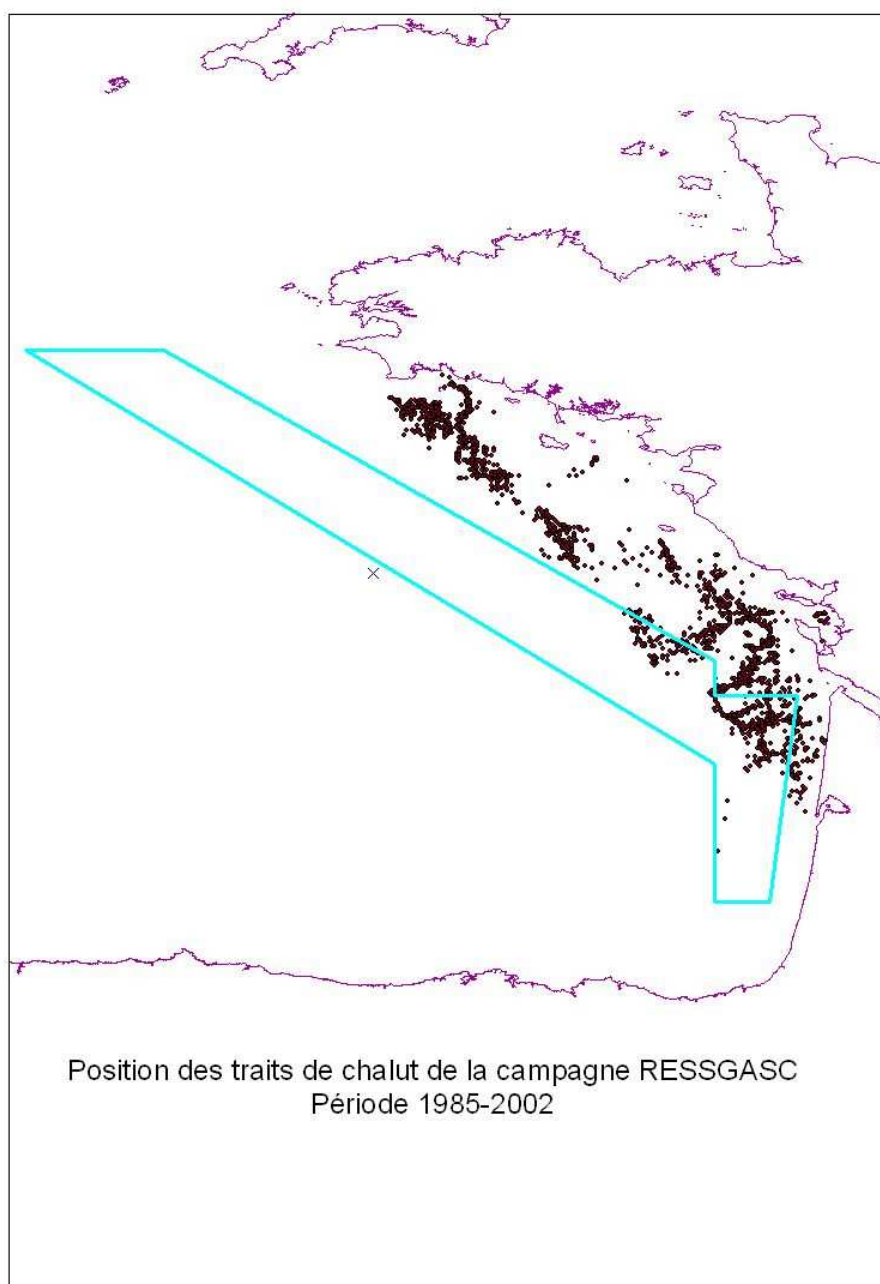


Figure 1 – Positions of hauls made from 1985 to 2002 during the Ifremer RESSGASC surveys.

## The EVHOE surveys from 1997 to 2007

Initiated in 1987, this survey was first conducted with the old R/V Thalassa and covered mostly the Bay of Biscay. Since 1997, they are conducted during the 4<sup>th</sup> quarter on board the new R/V Thalassa. The area covered has been extended and include the Bay of Biscay and the Celtic Sea at depth ranging from 25 to 500 m. Table 1 summarizes the number of hauls carried per year inside and outside the Box south of 48°N. Data from these hauls was used for this study. Figure 2 shows the location of these hauls.

Year	Outside the Box	Inside the Box	Total
1997	58	25	83
1998	40	29	69
1999	37	26	63
2000	40	33	73
2001	47	28	75
2002	51	28	79
2003	43	33	76
2004	46	29	75
2005	47	29	76
2006	48	20	68
2007	53	23	76
Total	510	303	813

Table 1 – EVHOE surveys number of hauls carried inside and outside the Box south of 48°N.

Campagnes EVHOE 1997 - 2007

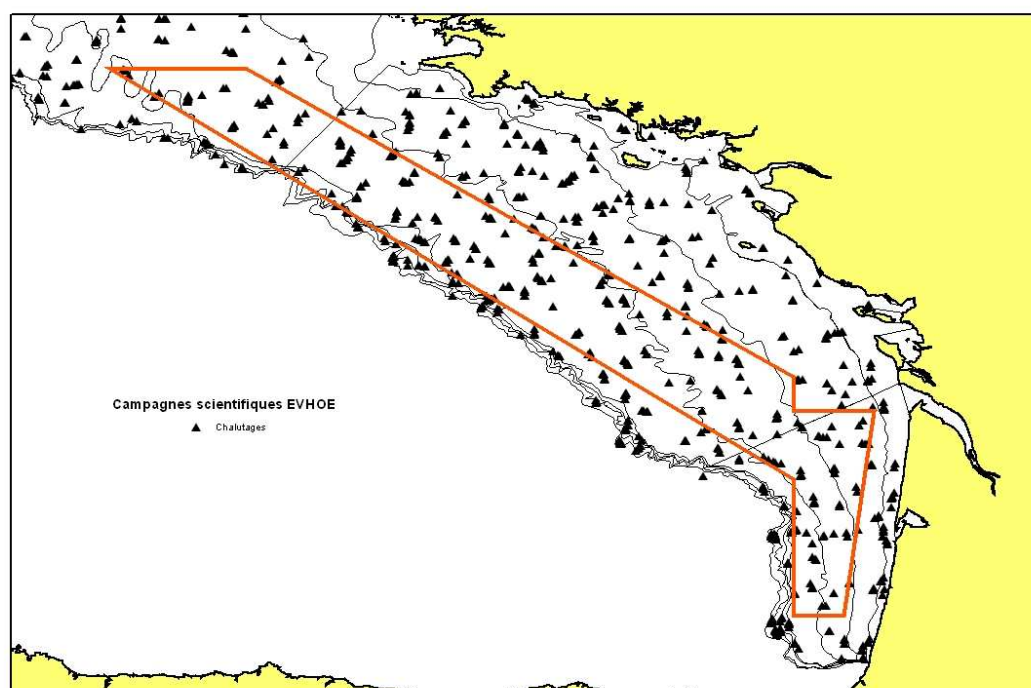


Figure 2 – Positions of hauls carried from 1997 to 2007 in the Bay of Biscay during the Ifremer EVHOE surveys.

## Characteristics of Hake populations in the Bay of Biscay inside and outside the Box

Over the entire 1997 – 2007 period, mean abundance per length class inside and outside the Box (Fig. 3) clearly show that juveniles are more abundant outside the Box. Figure 4 shows hake distribution in abundance and mean length. Figure 5 shows hake abundance less than and over minimum landing size. Juveniles are found primarily on the « Grande Vasière » area located mostly north of the Box. There is also another area where juveniles of hake concentrate south of the Gironde estuary there again located mostly outside the Box.

Figures 6 a-k show year by year evolution of hake abundance less and over minimum landing size.

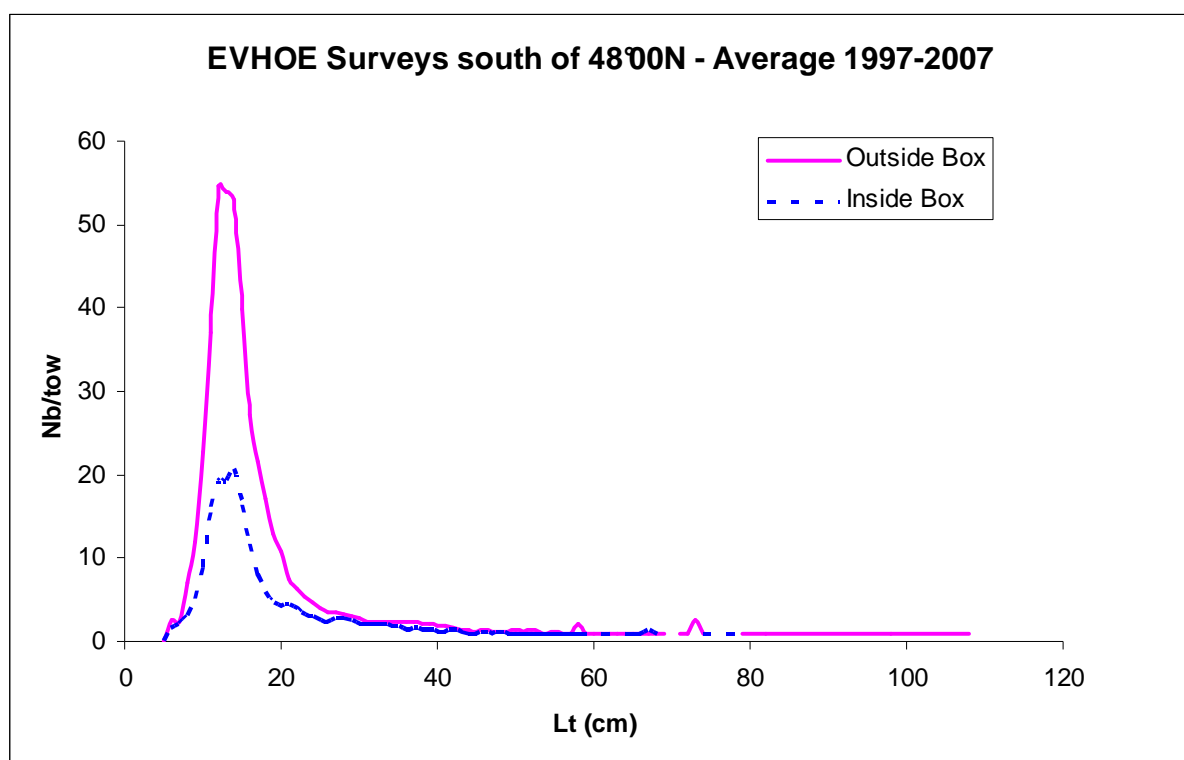
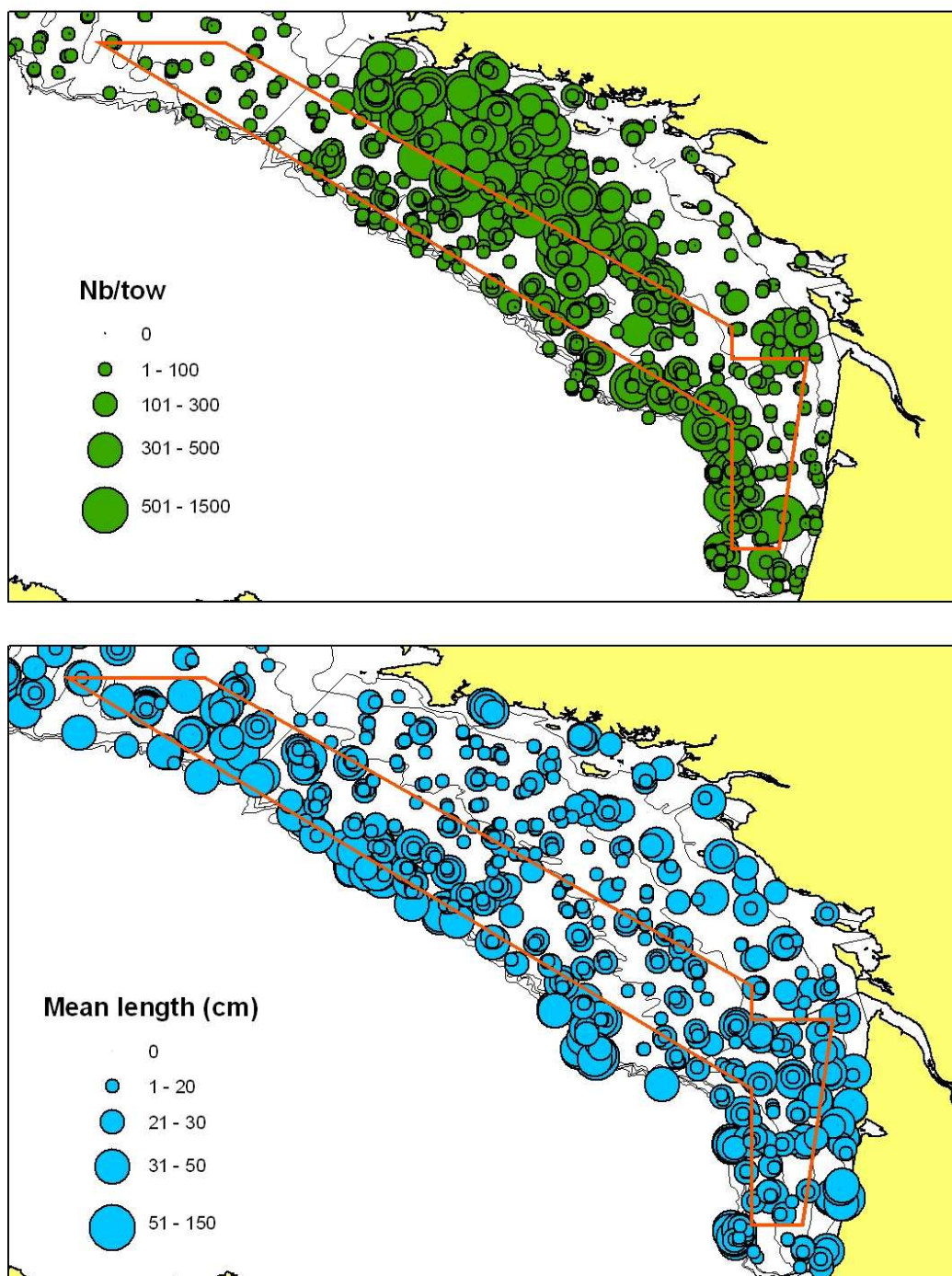


Figure 3 - EVHOE surveys. Length distribution of catches in mean number per tow inside and outside the Box averaged over the period 1997 - 2007.

## EVHOE Surveys 1997 - 2007

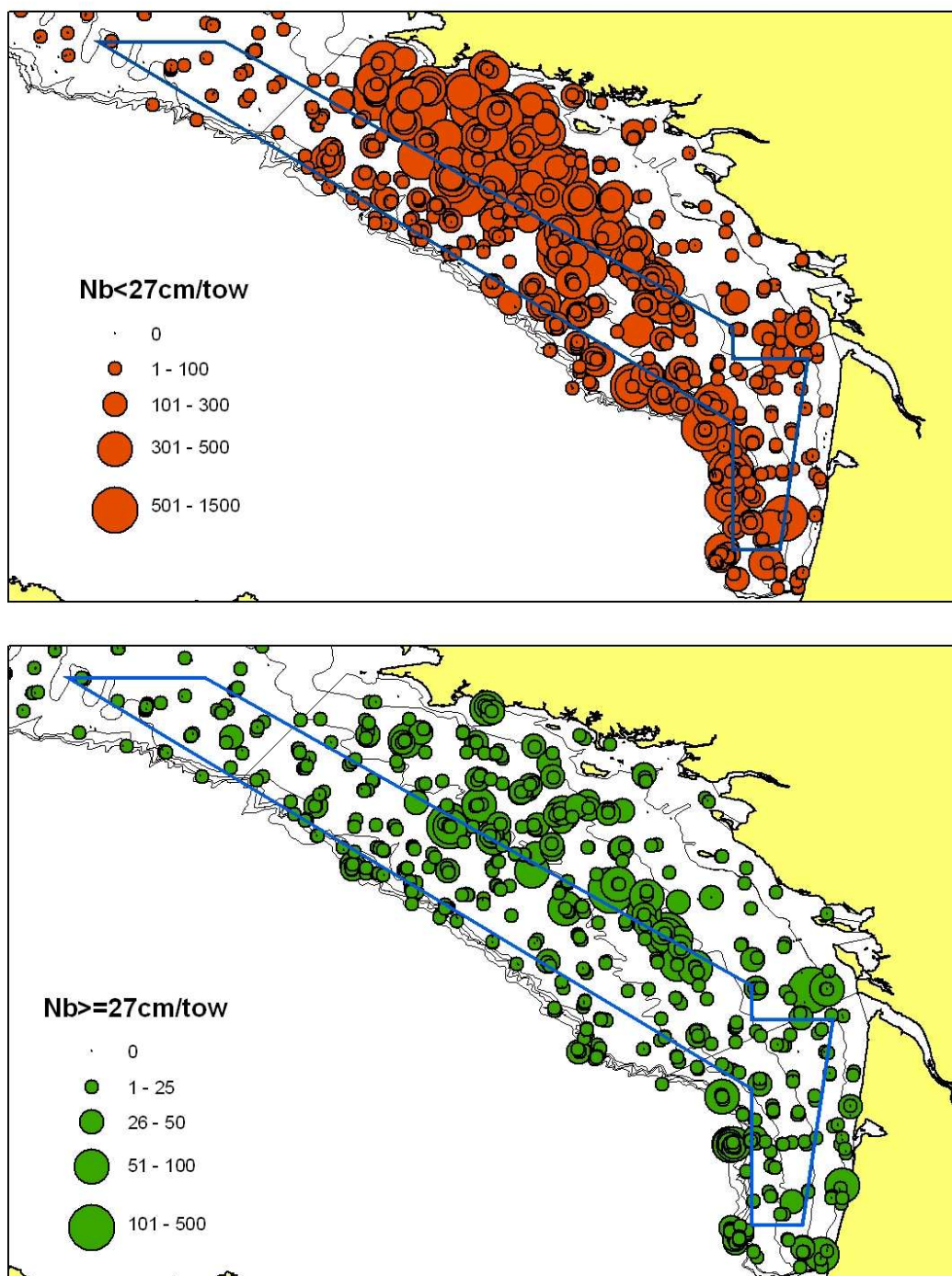


Hake mean abundance (Nb/tow) and mean length in the catches observed during the EVHOE surveys from 1997 to 2007 in relation to the Box area.

Figure 4 -



## EVHOE Surveys 1997 - 2007



Hake, mean abundance of hake less than and more than minimum landing size observed during the EVHOE surveys from 1997 to 2007 in relation to the Box area

Figure 5

Campagne EVHOE 1997  
Rendements en merlu par groupe de taille

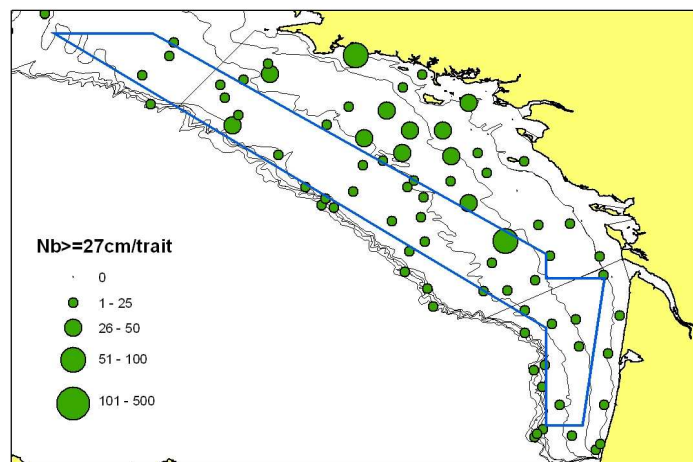
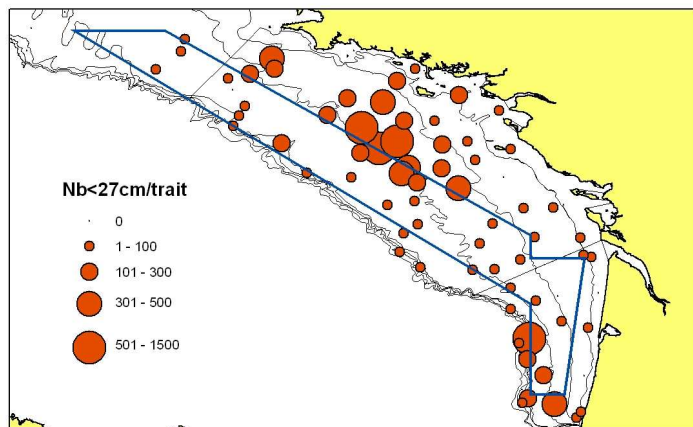


Figure 6 a

Campagne EVHOE 1998  
Rendements en merlu par groupe de taille

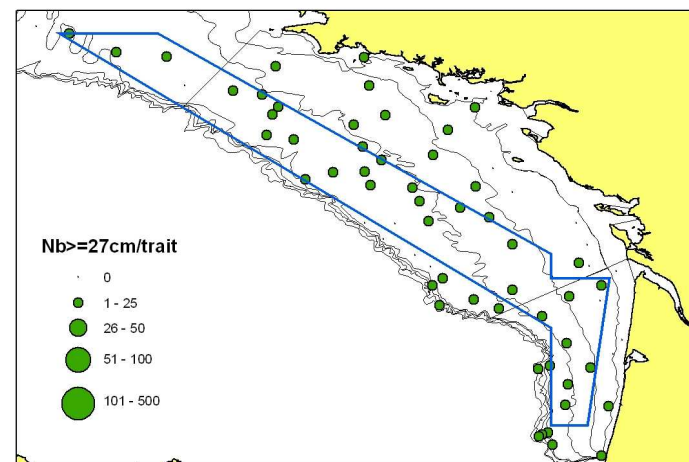
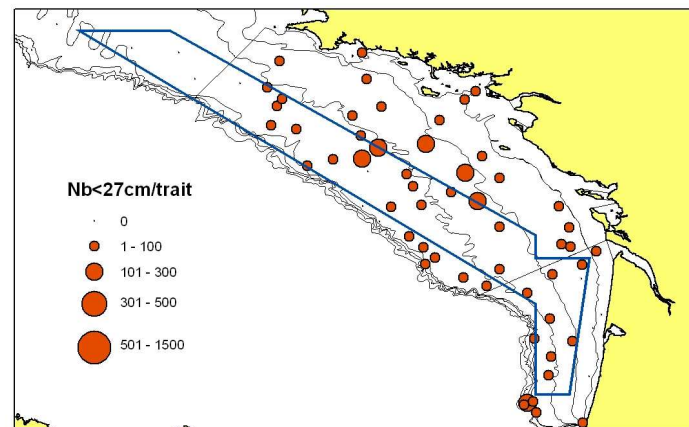
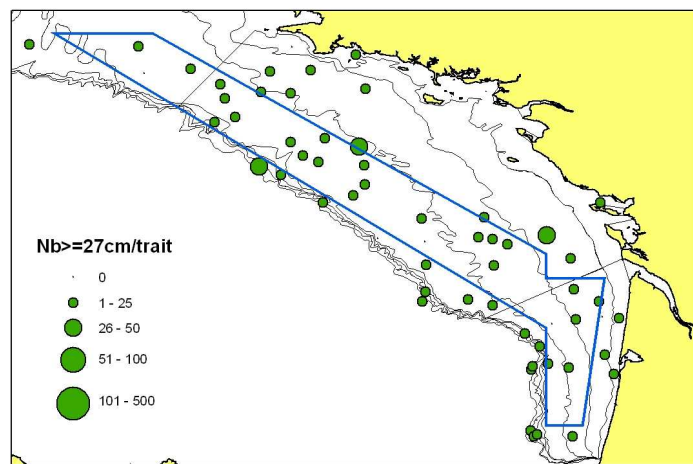
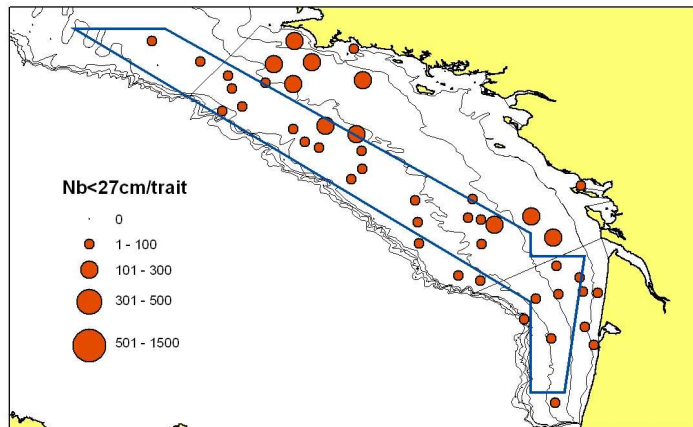


Figure 6b

Campagne EVHOE 1999 \*  
Rendements en merlu par groupe de taille



\* Année du naufrage de l'Erika - couverture incomplète de la zone

Figure 6 c

Campagne EVHOE 2000  
Rendements en merlu par groupe de taille

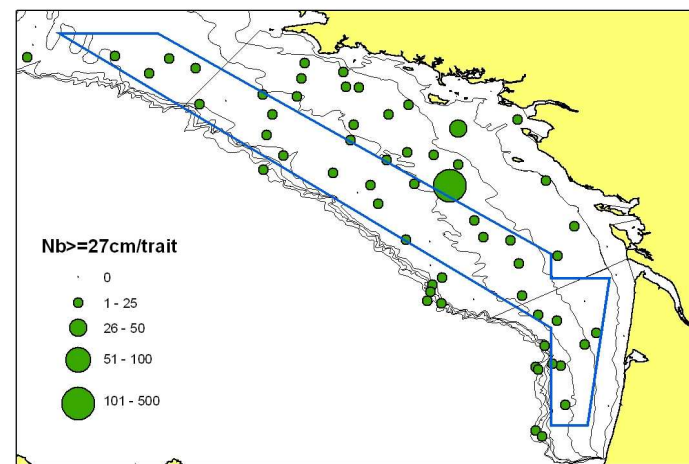
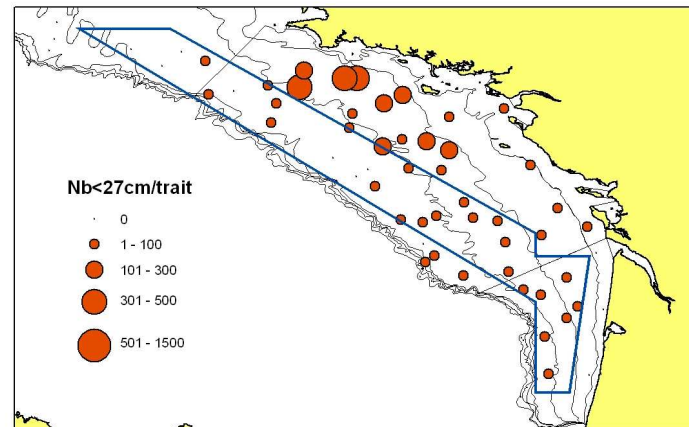


Figure 6 d

Campagne EVHOE 2001  
Rendements en merlu par groupe de taille

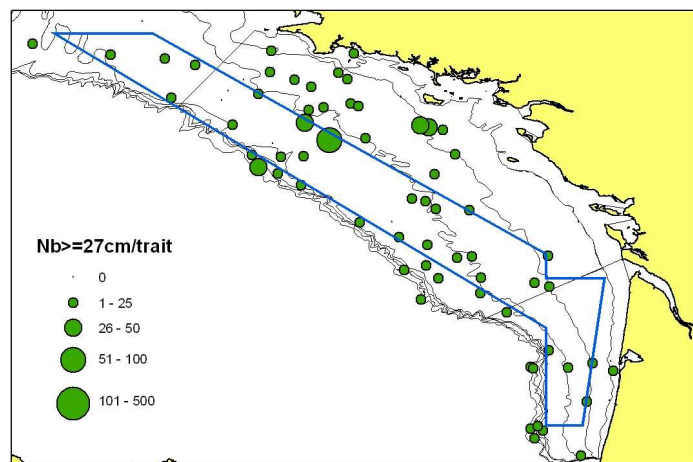
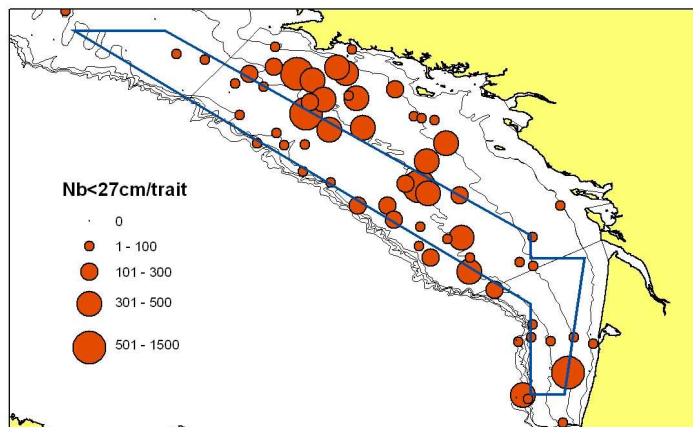


Figure 6 e

Campagne EVHOE 2002  
Rendements en merlu par groupe de taille

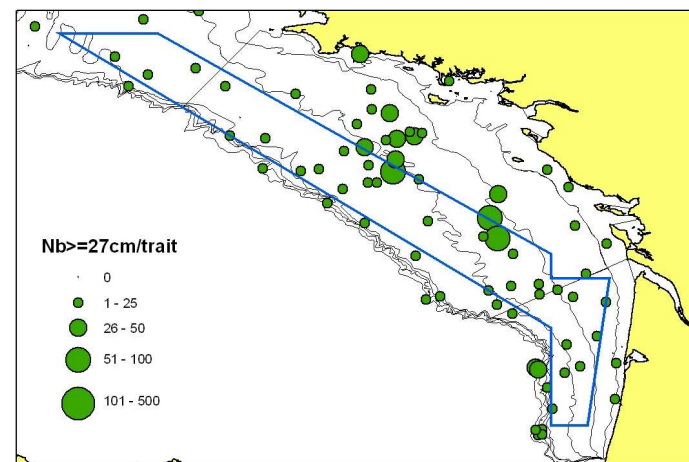
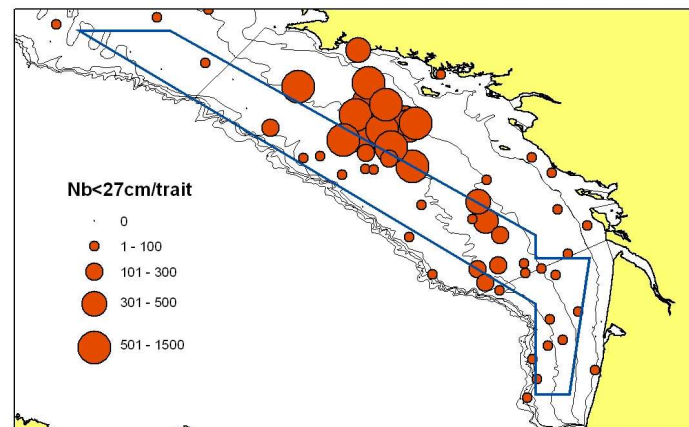


Figure 6 f



Campagne EVHOE 2003  
Rendements en merlu par groupe de taille

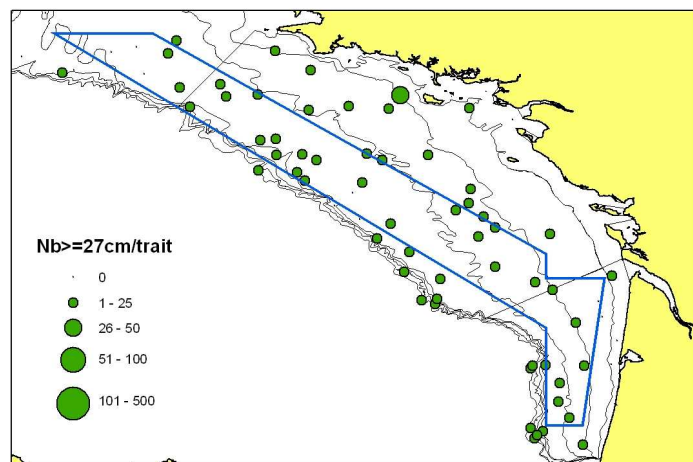
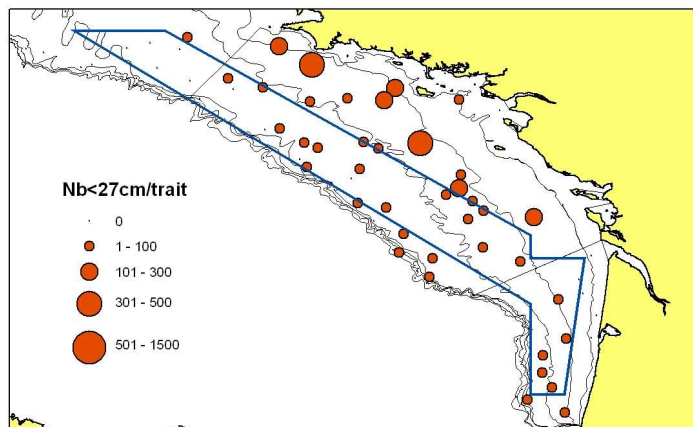


Figure 6 g

Campagne EVHOE 2004  
Rendements en merlu par groupe de taille

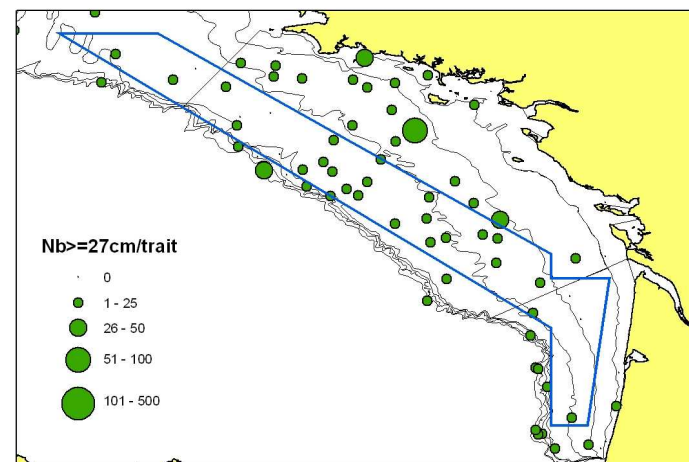
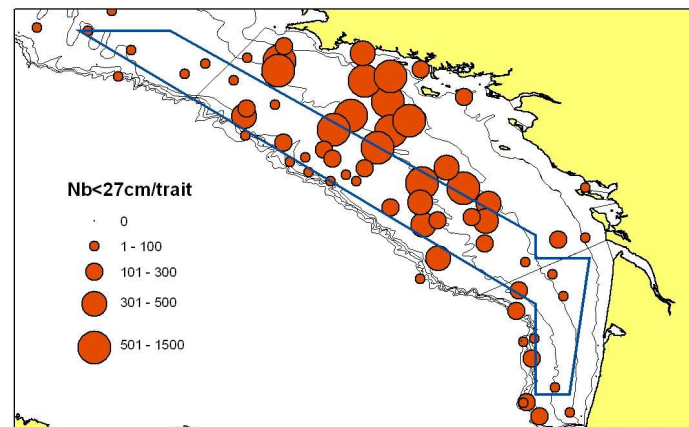


Figure 6 h

Campagne EVHOE 2005  
Rendements en merlu par groupe de taille

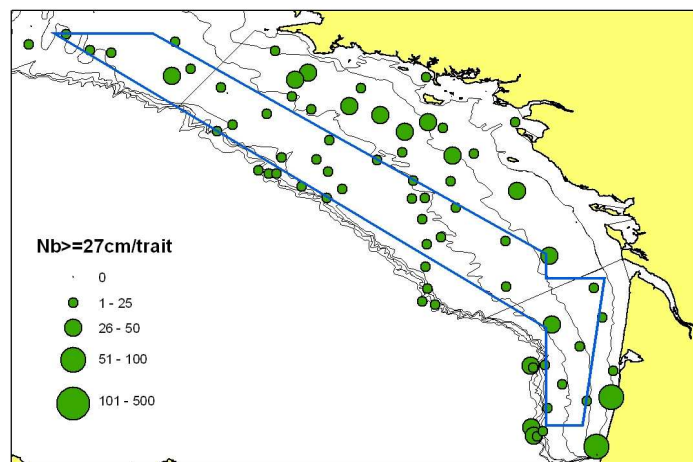
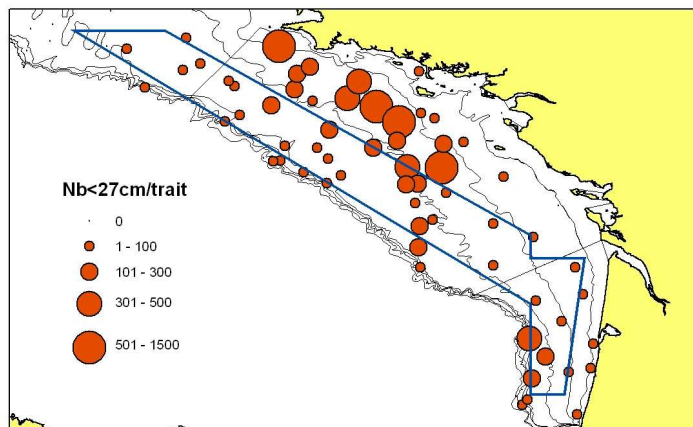


Figure 6 i

Campagne EVHOE 2006  
Rendements en merlu par groupe de taille

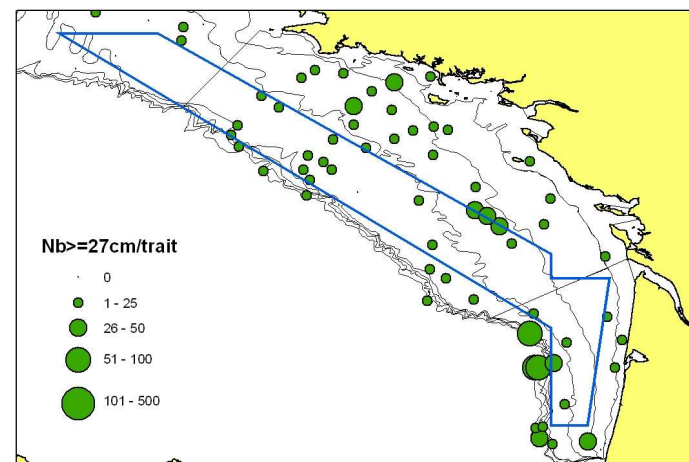
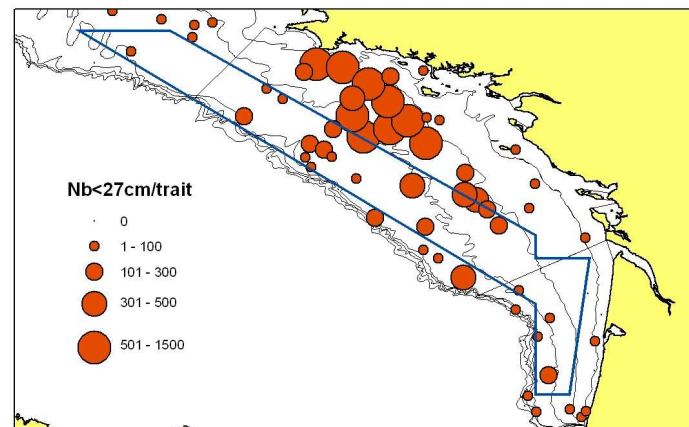


Figure 6 j

Campagne EVHOE 2007  
Rendements en merlu par groupe de taille

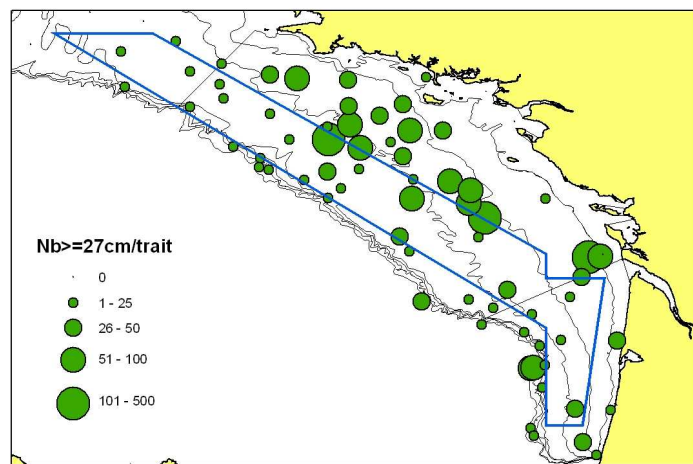
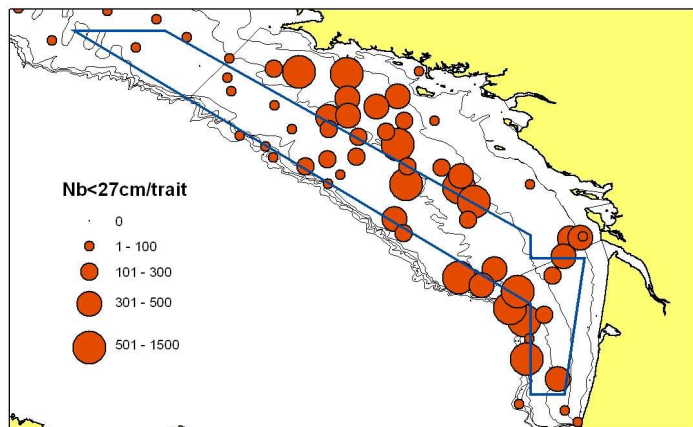


Figure 6 k