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International Council for the
Exploration of the Sea

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PART 2

REPORT OF THE HERRING ASSESSMENT WORKING GROUP
FOR THE AREA SOUTH OF 62°N

Copenhagen, 4 - 14 April 1989

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*General Secretary
ICES
Palægade 2-4
DK-1261 Copenhagen K
DENMARK

Figure 2.3.1 Regression of VPA 1-ringers on IYFS indices. Recent year classes indicated by asterisk have not been used in calculating the regression. The dotted line represents line forced through the origin.

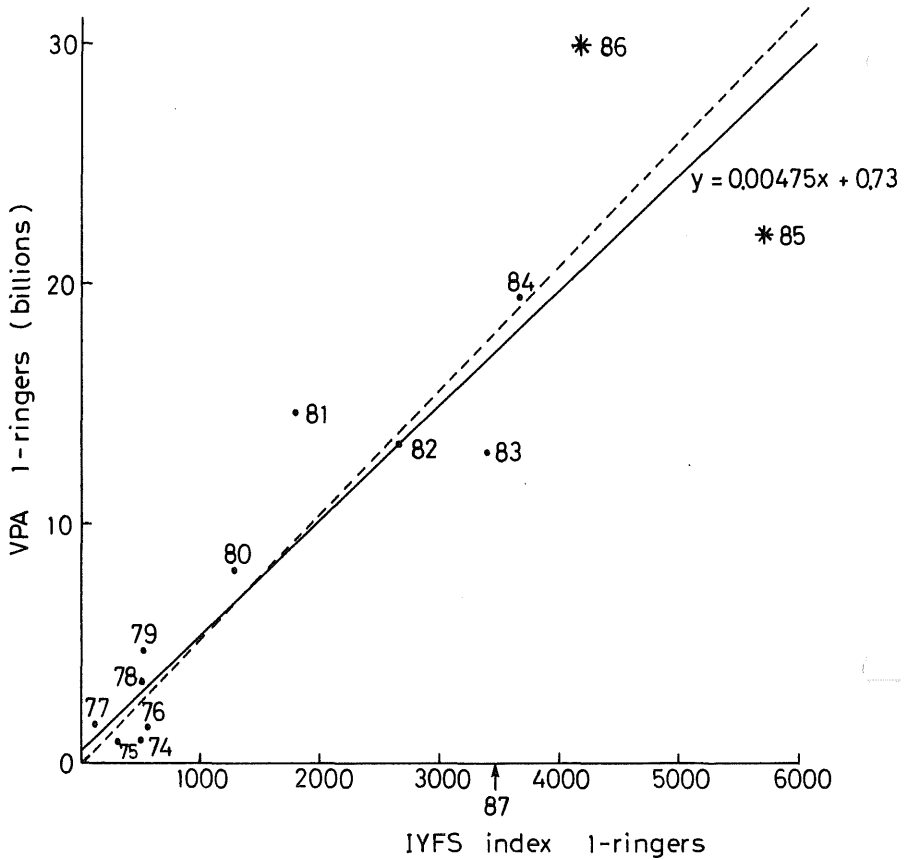


Figure 2.3.2 Plot of IKMT indices in VPA estimates of 0-ring herring at 1 July.
Year classes indicated by asterisk have not been used in calculating regression.

*86

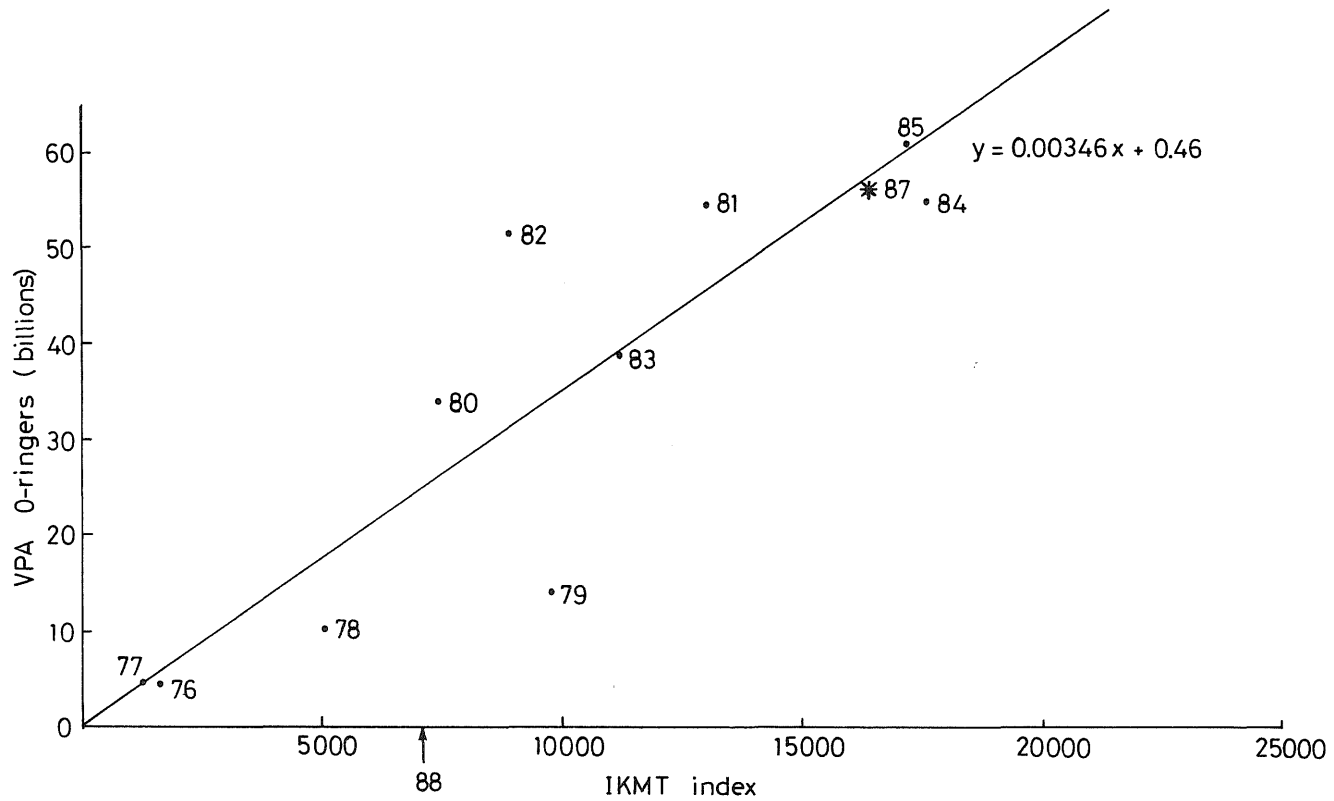


Figure 2.3.3 0-group herring sampled by IKMT during the International Young Fish Surveys in 1987-1989.

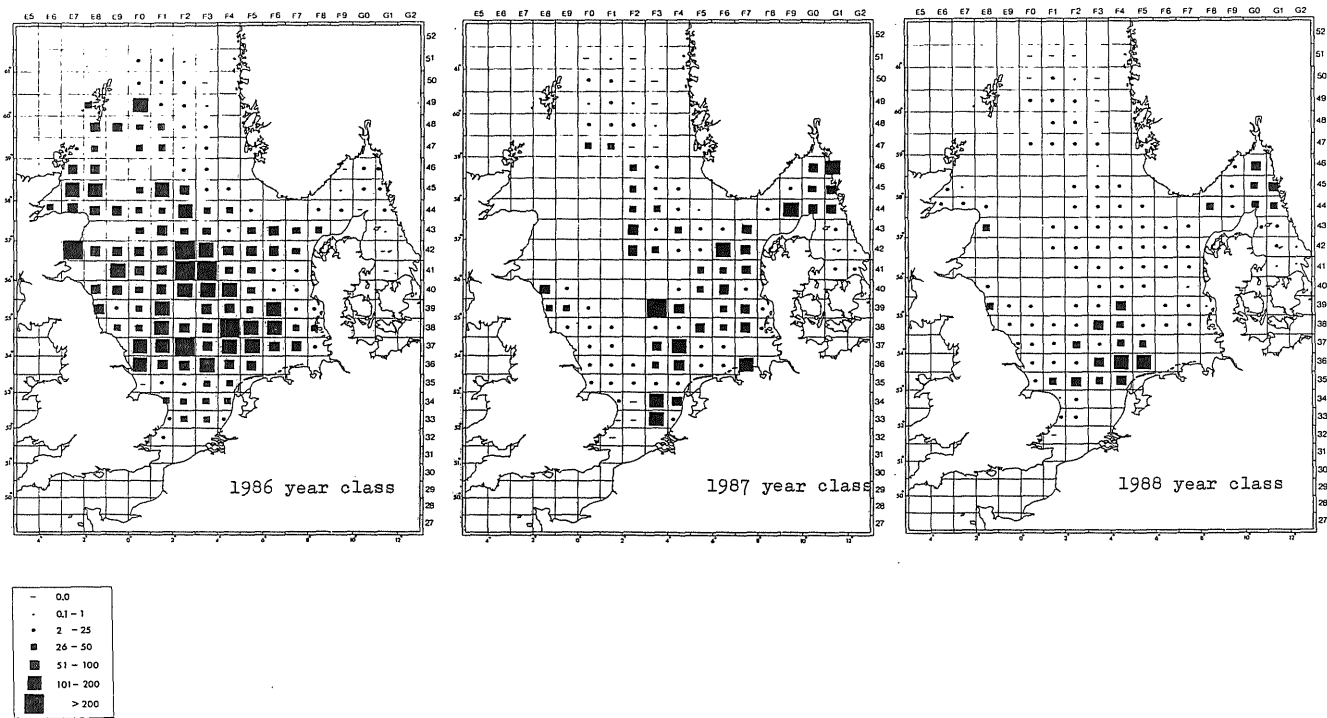


Fig. 2.3.4. RECRUITMENT AS 1-RINGERS

Herring - Total North Sea

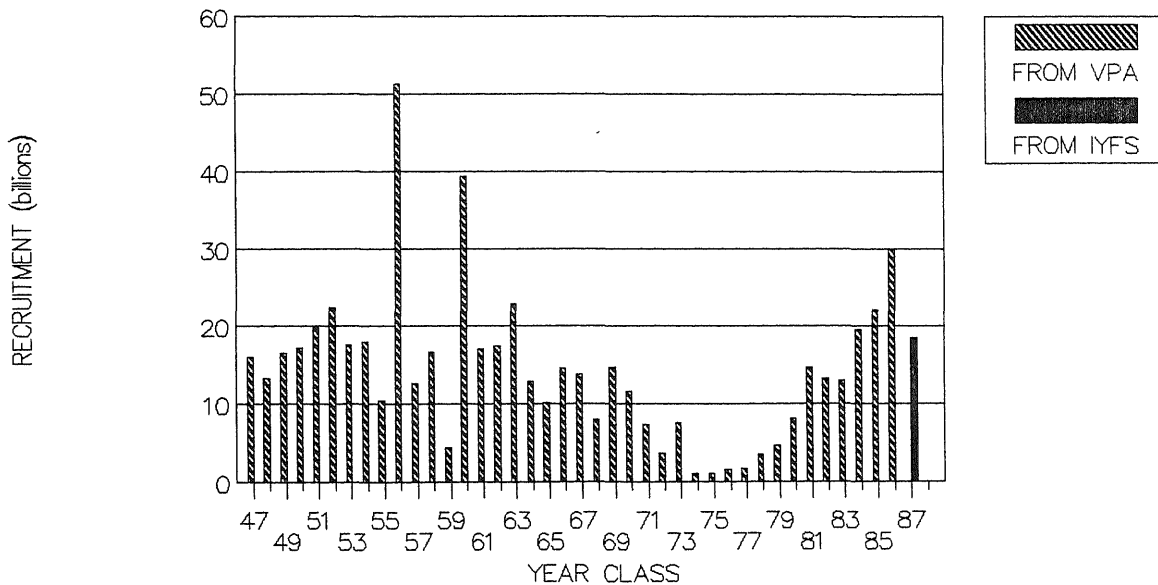


Fig. 2.5.1 DEVELOPMENT OF STOCKS
LPE – NORTH SEA DIVISIONS

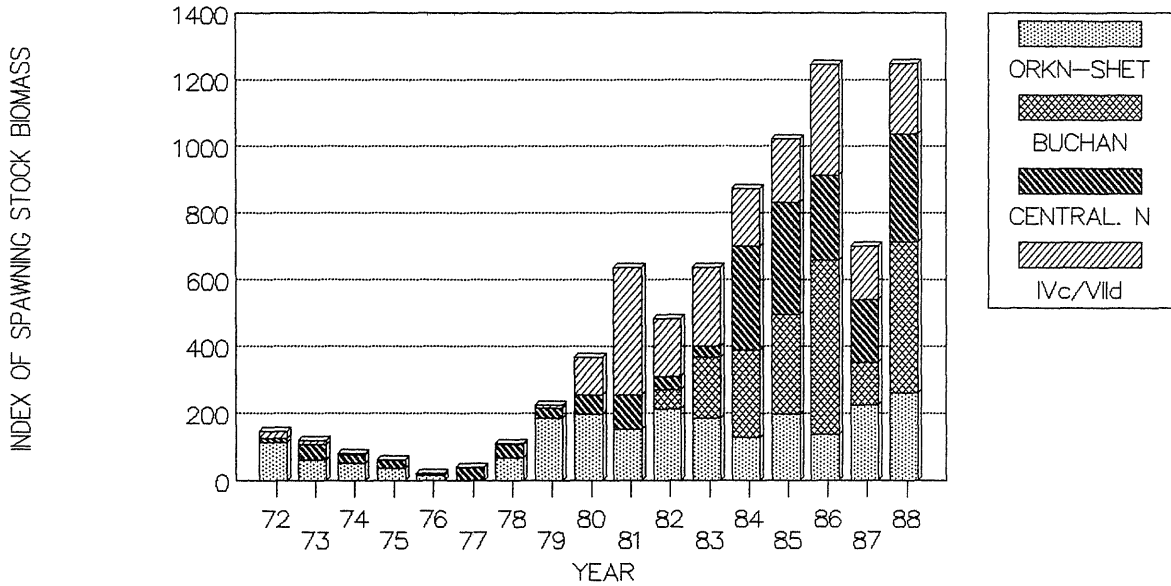


Figure 2.7.1 Cumulative catch by month in the North Sea.

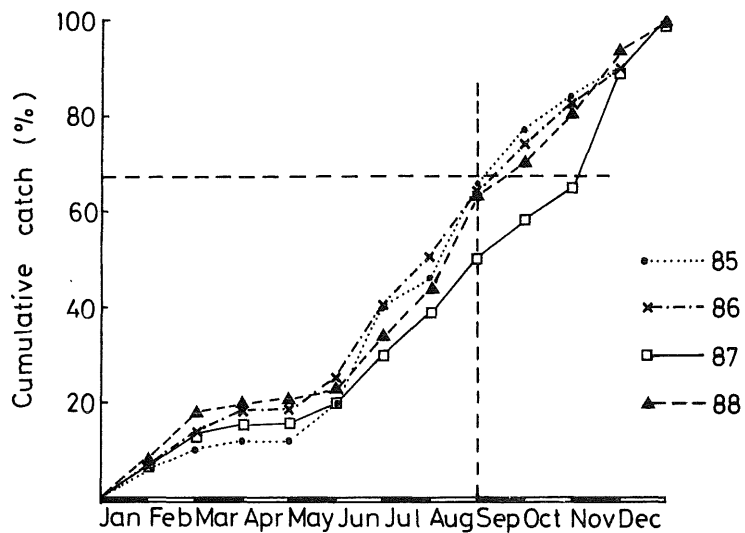


Figure 2.7.2 Catchability pattern by age group from the VPA tuning.

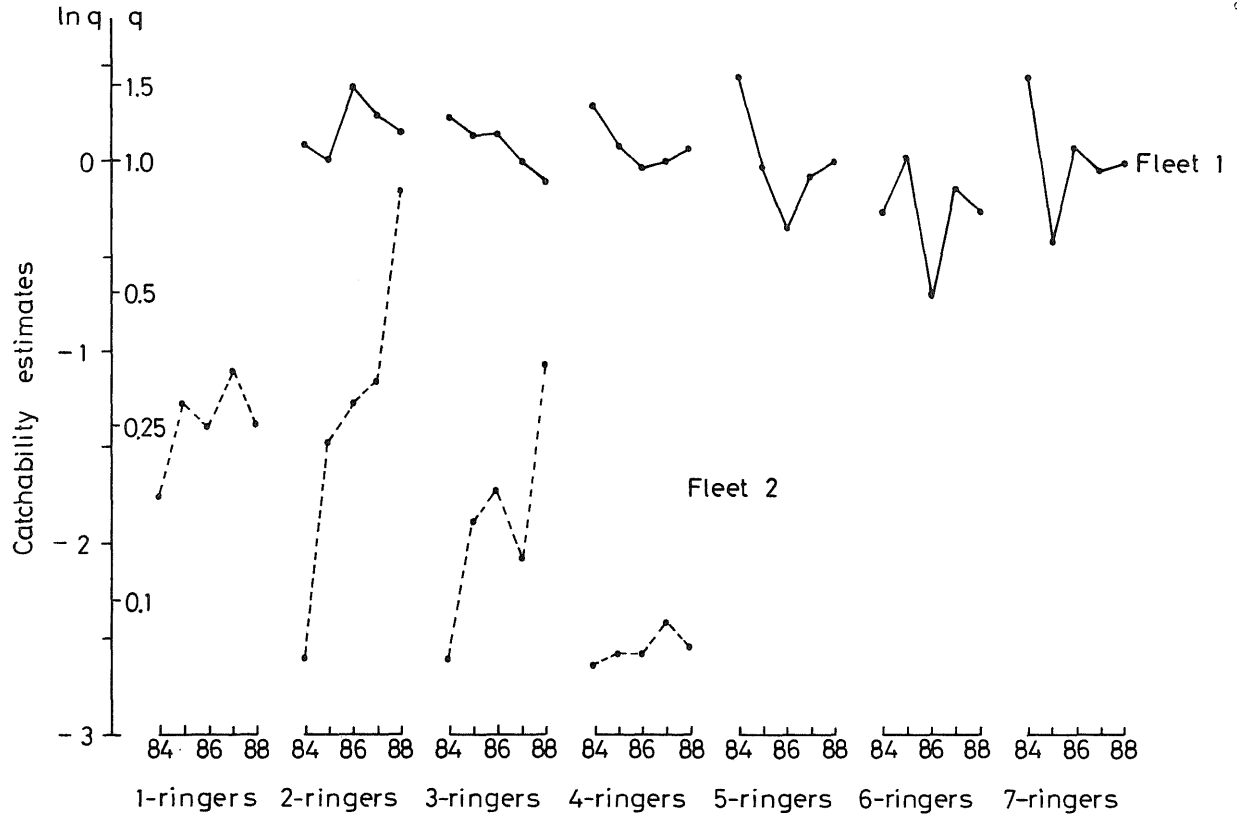


Fig. 2.7.3 STOCK-RECRUITMENT

North Sea Herring VPA 1-ringers

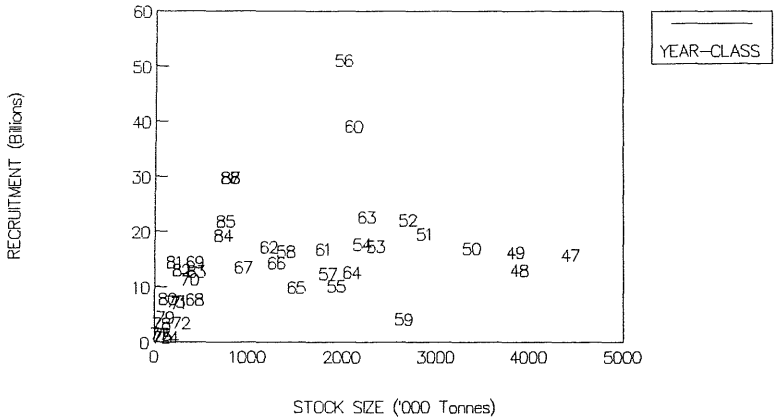


Fig 2.7.4 RECRUITMENT SUCCESS

Herring - Total North Sea

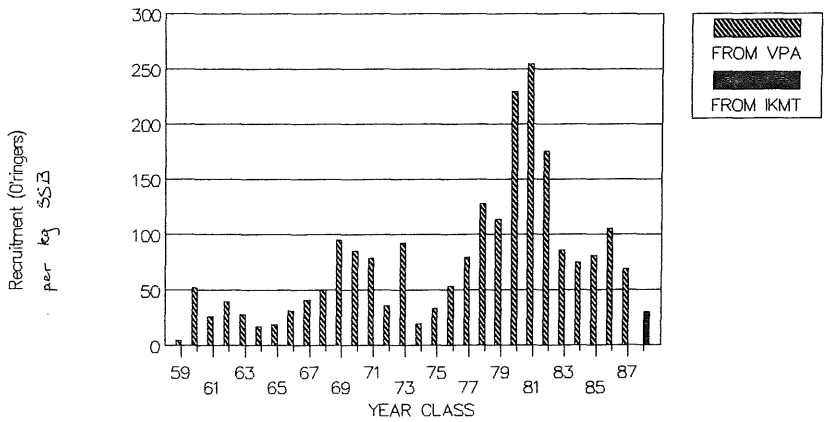


Fig 2.7.5 Larvae per gramme SSB

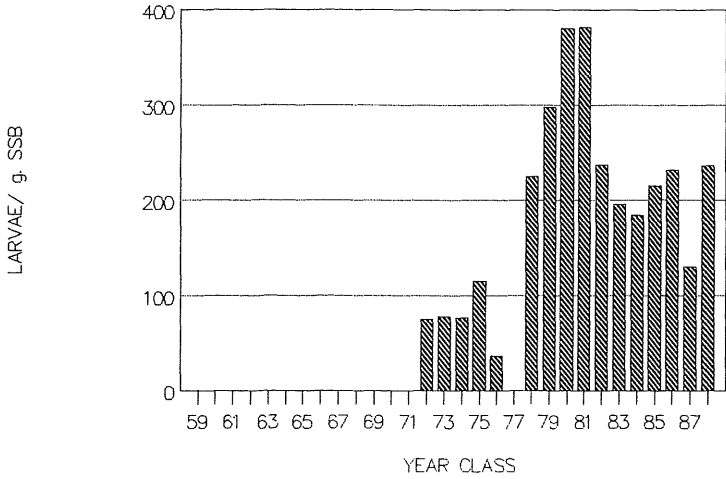


Fig 2.7.6 0 group - Number per 1000 larvae

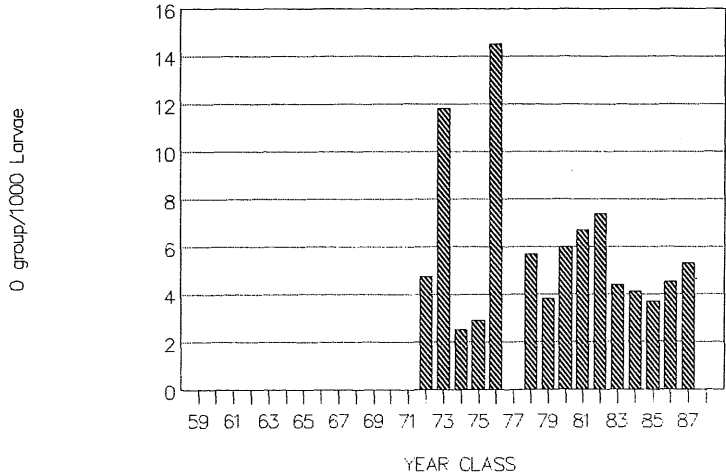


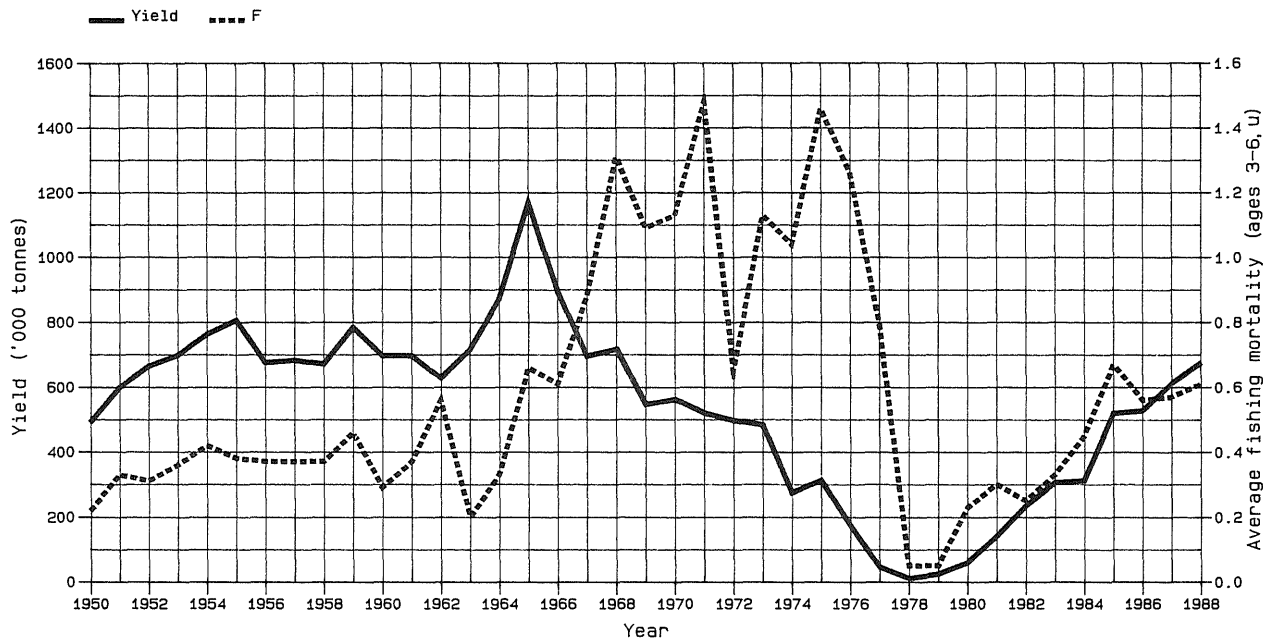
Figure 2.8.1

FISH STOCK SUMMARY

STOCK: Herring - Total North Sea

20-04-1989

Trends in yield and fishing mortality (F)



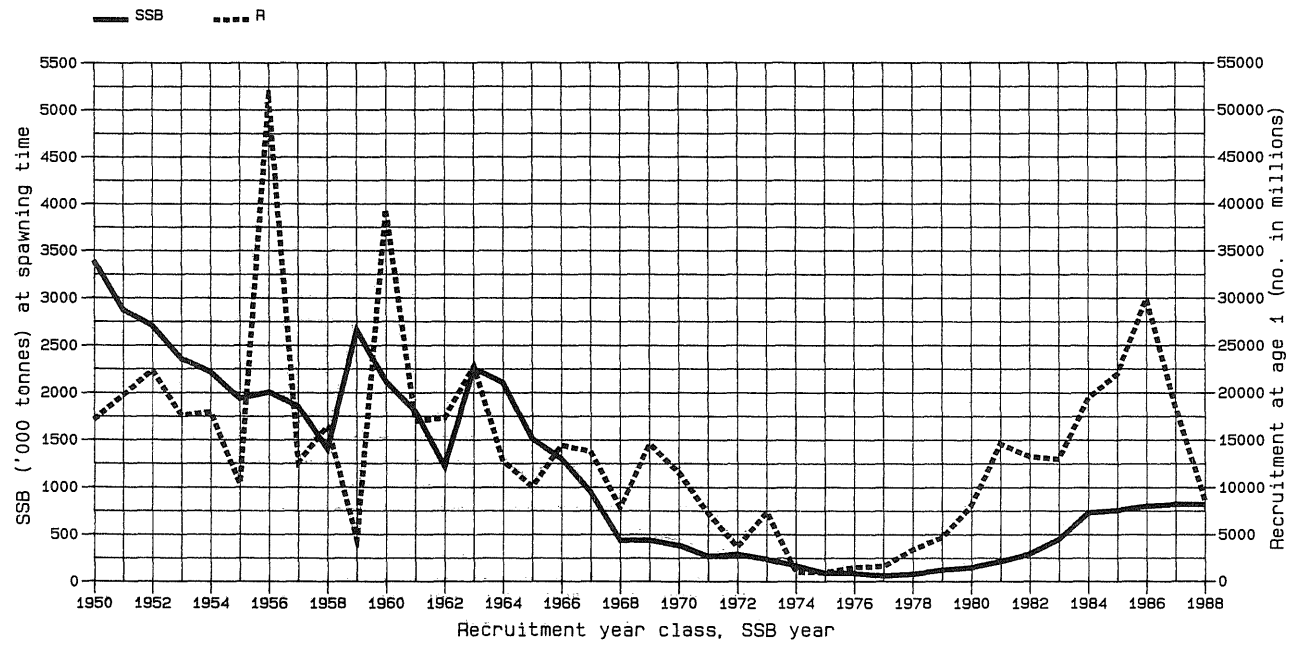
FISH STOCK SUMMARY

STOCK: Herring - Total North Sea

20-04-1989

Figure 2.8.1 cont'd.

Trends in spawning stock biomass (SSB) and recruitment (R)



B

cont'd.

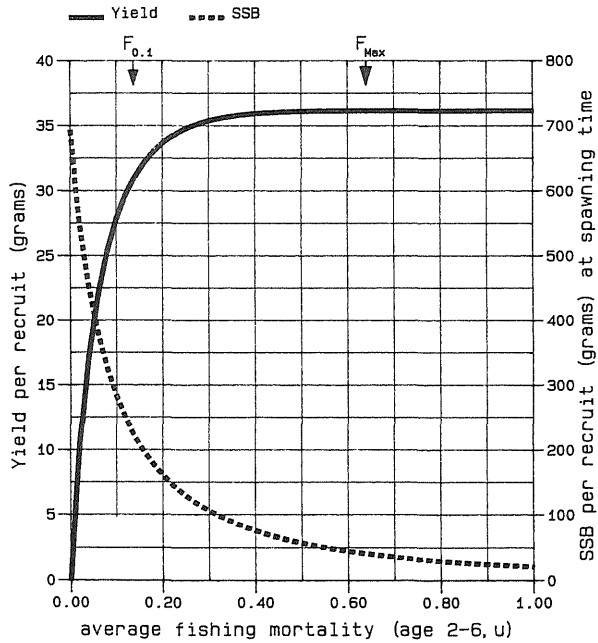
FISH STOCK SUMMARY

STOCK: Herring - Total North Sea

24-04-1989

Figure 2.8.1 cont'd.

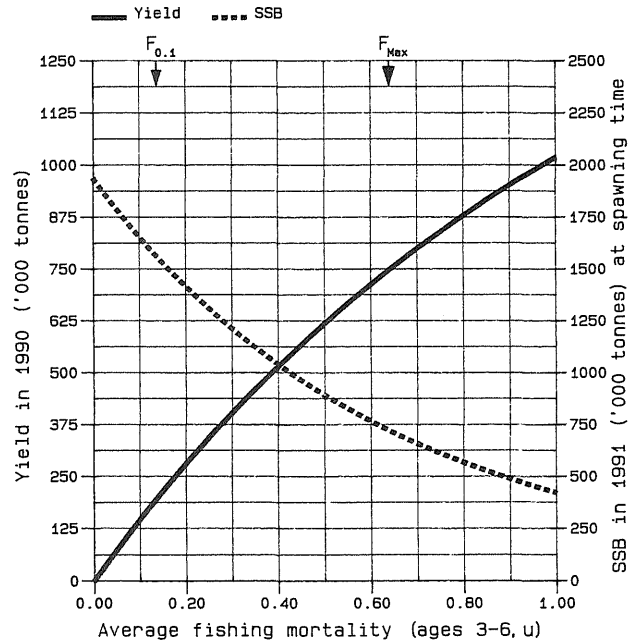
Long-term yield and spawning stock biomass



C

Short-term yield and spawning stock biomass

Assuming catch of 514,000 t in 1989



D

cont'd.

FISH STOCK SUMMARY

Figure 2.8.1 cont'd. STOCK: Herring - Total North Sea
24-04-1989

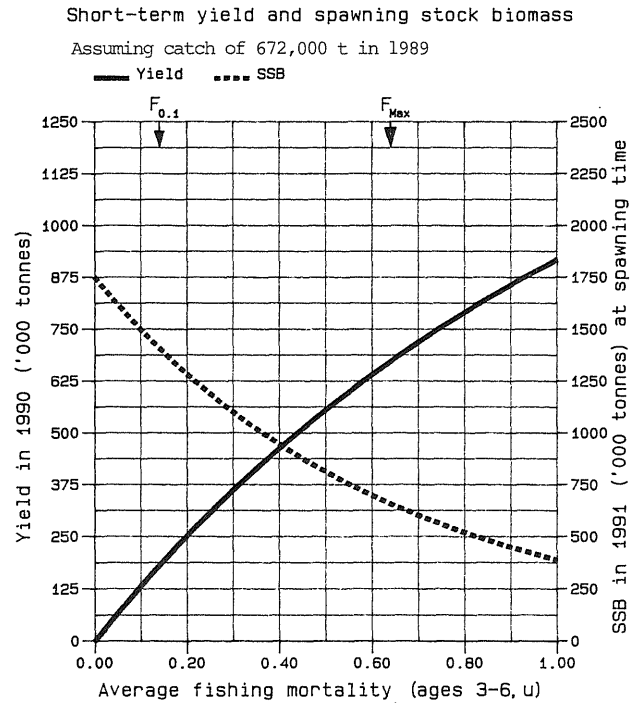
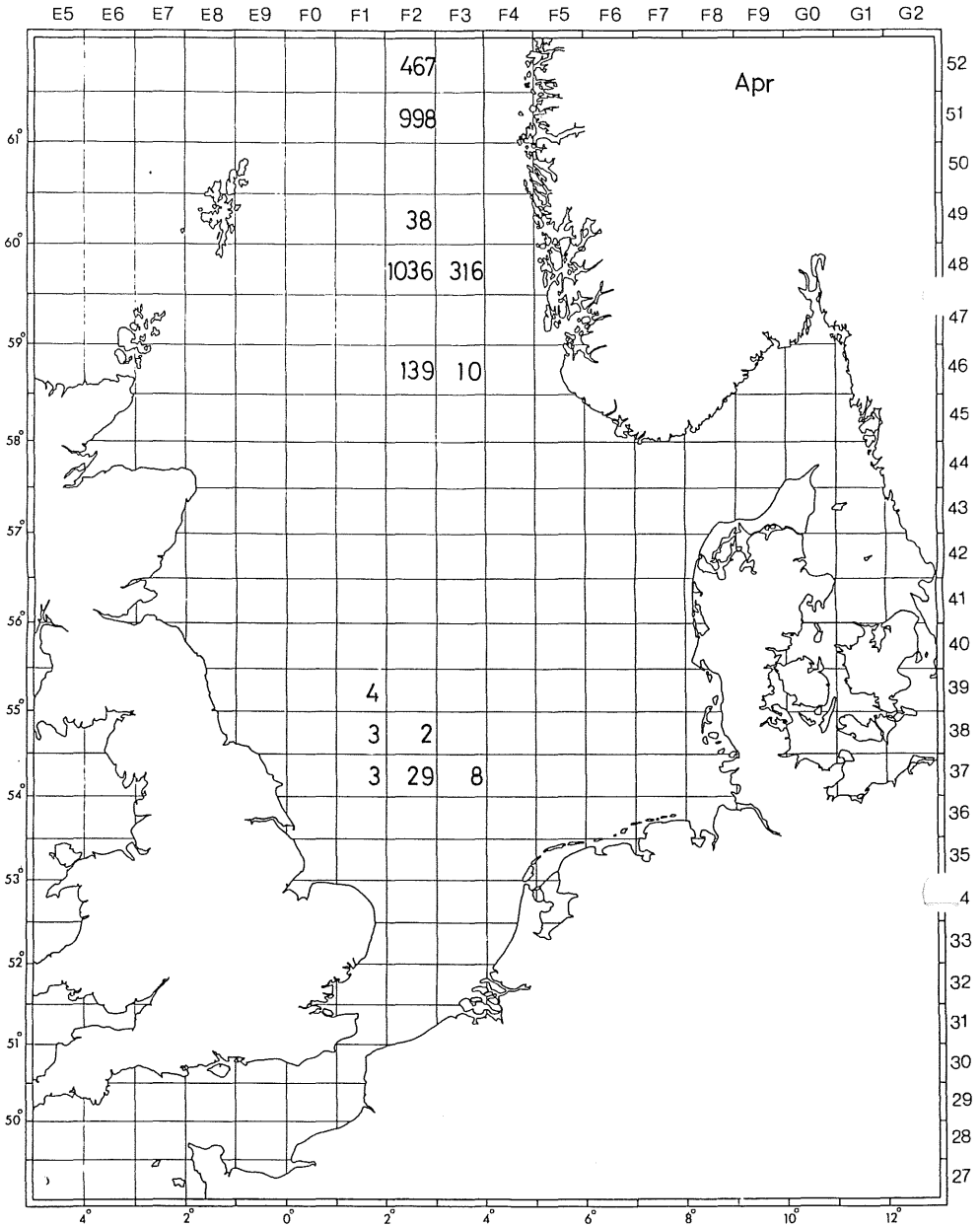


Figure 2.10.4 North Sea herring, 1988. Total catch April 3,183 t.



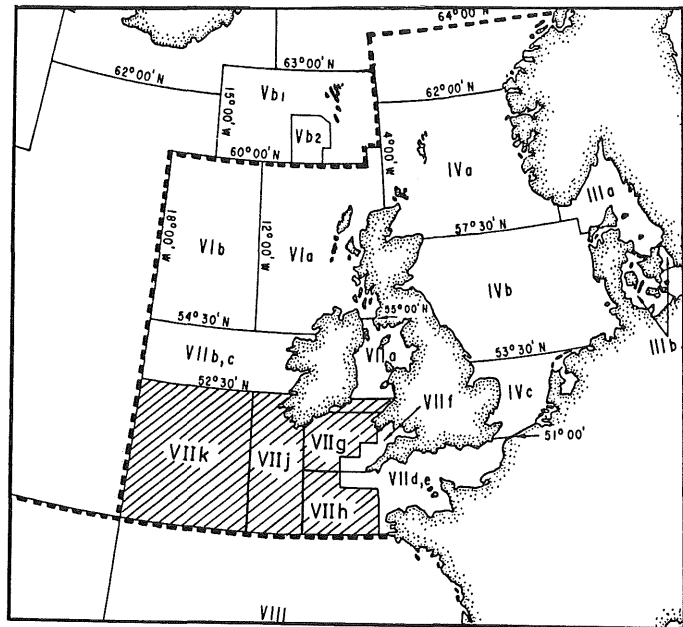


Figure 4.1.1 The assessment covers the area Divisions VIIj and VIIg and that part of Division VIIa below 52°30'. TAC is set by EC for Divisions VIIg-k and that section of Division VIIa below 52°30'.

Figure 5.1.1 Herring in Division VIa North. Larval abundance indices plotted against SSB estimates from VPA.

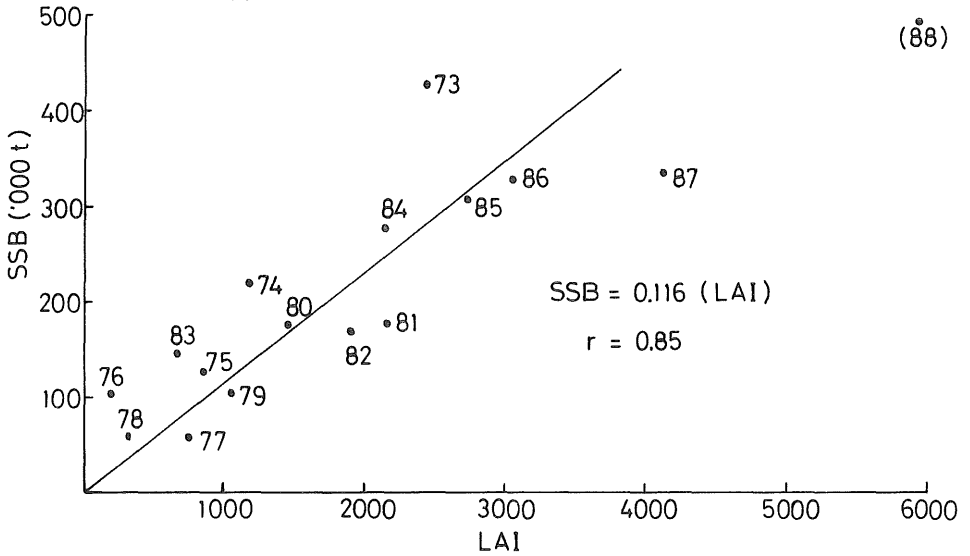
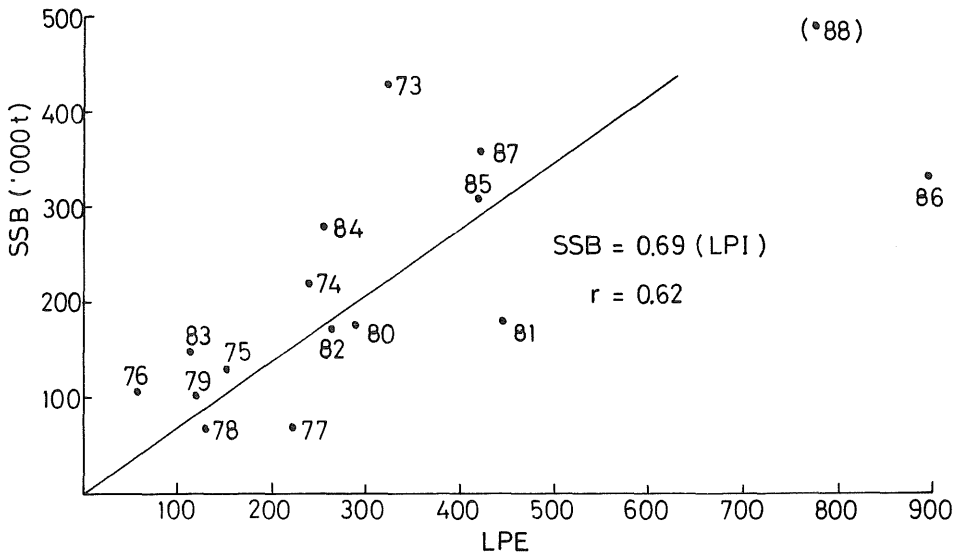


Figure 5.1.2 Herring in Division VIa North. Larval production estimates plotted against SSB estimates from VPA.



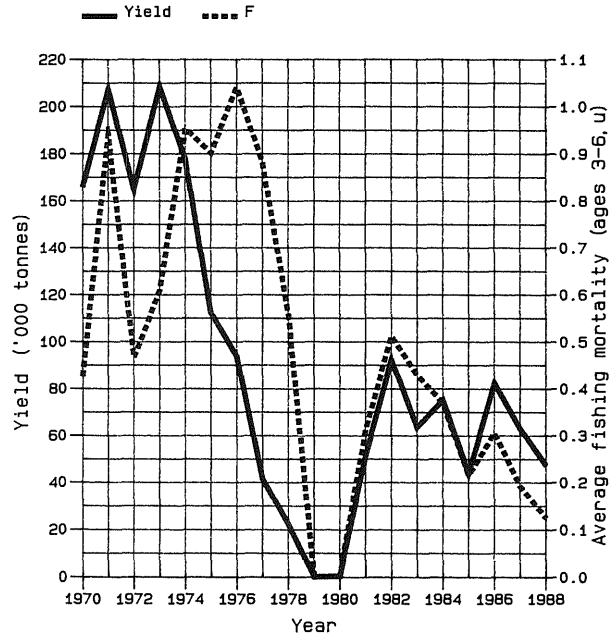
FISH STOCK SUMMARY

STOCK: Herring - IVa North

24-04-1989

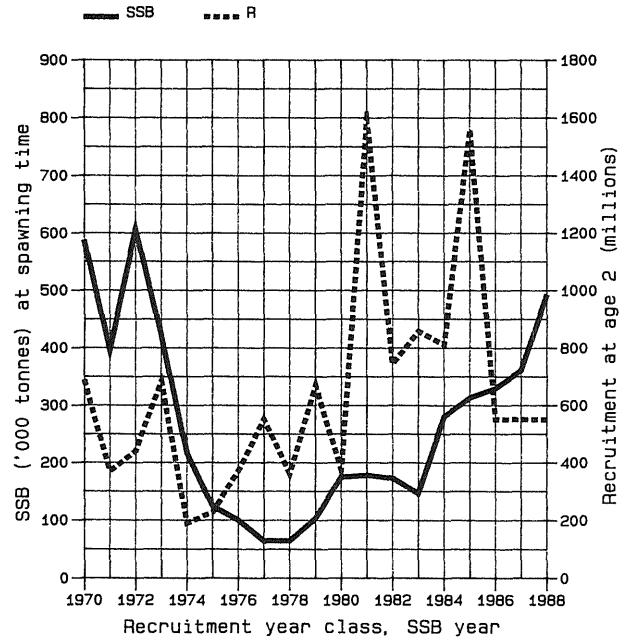
Figure 5.1.3

Trends in yield and fishing mortality (F)



A

Trends in spawning stock biomass (SSB) and recruitment (R)



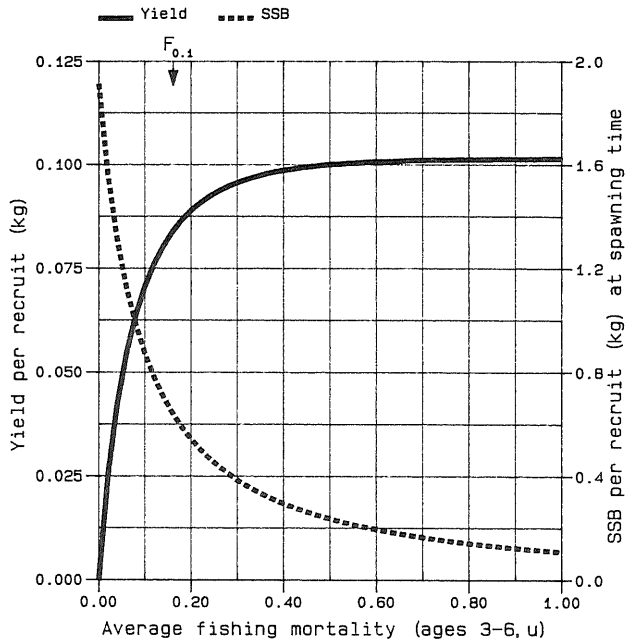
B

cont'd.

FISH STOCK SUMMARY
 STOCK: Herring - IVa North
 24-04-1989

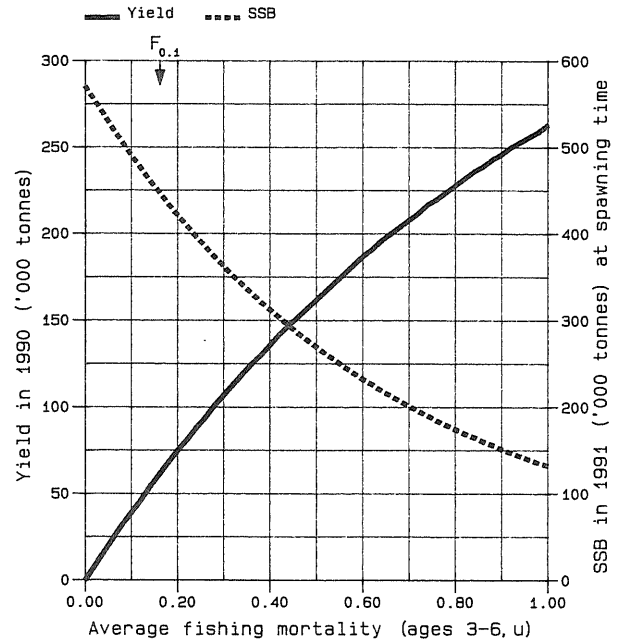
Figure 5.1.3 cont'd.

Long-term yield and spawning stock biomass



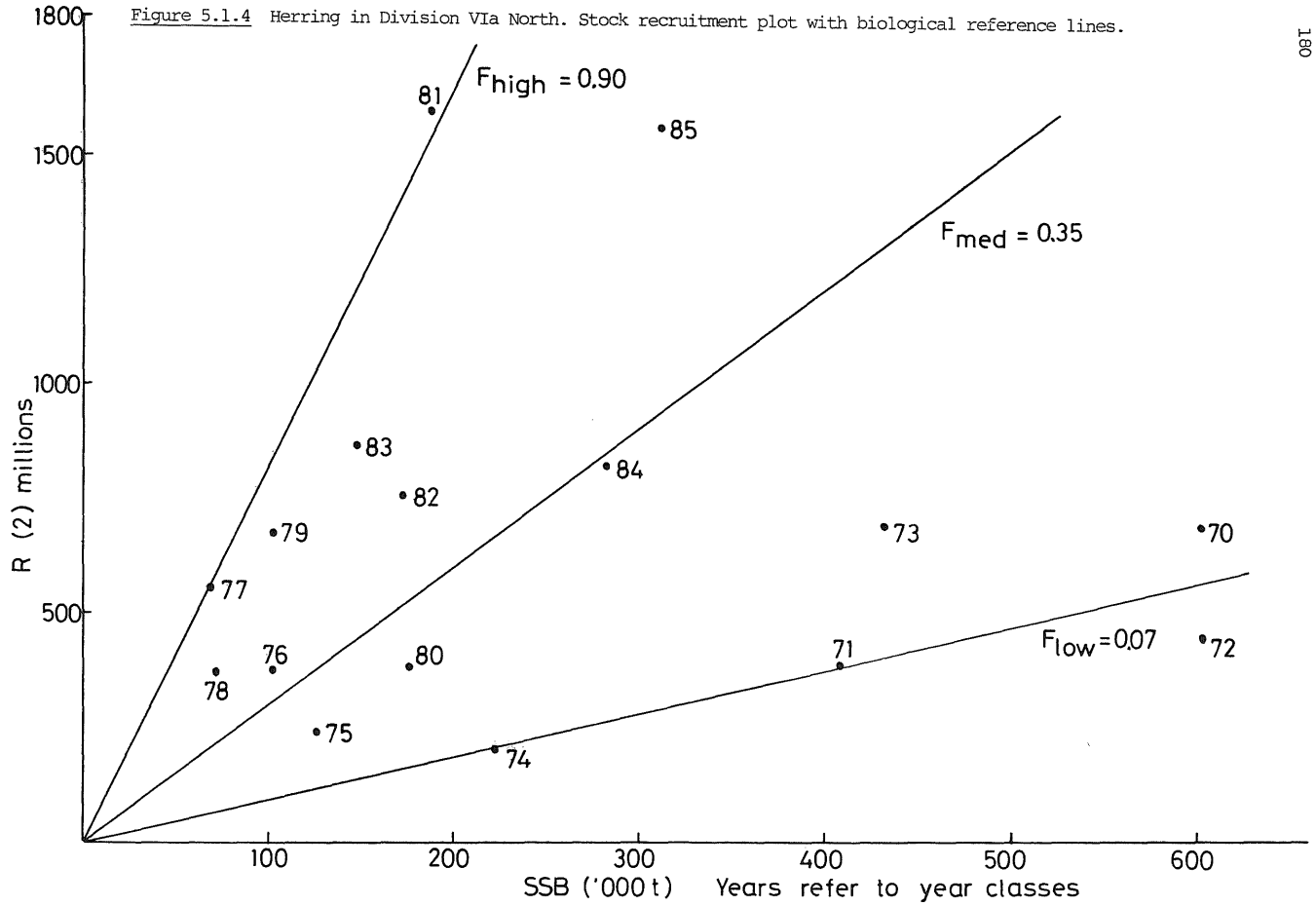
C

Short-term yield and spawning stock biomass



D

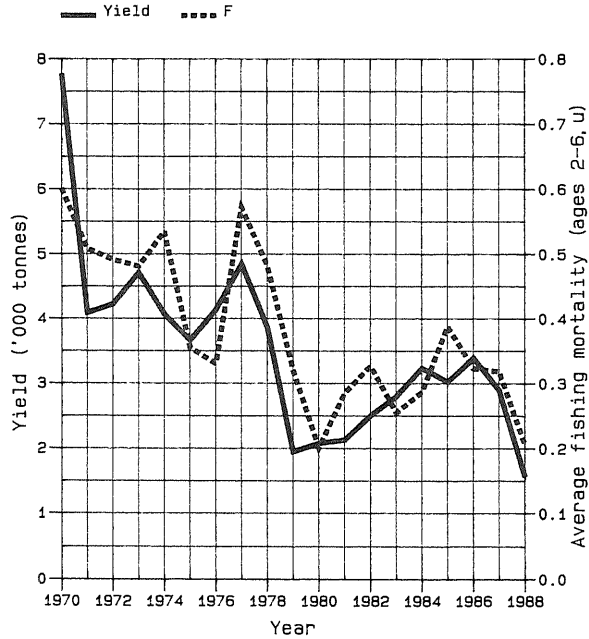
Figure 5.1.4 Herring in Division VIa North. Stock recruitment plot with biological reference lines.



FISH STOCK SUMMARY
 STOCK: Clyde Herring
 24-04-1989

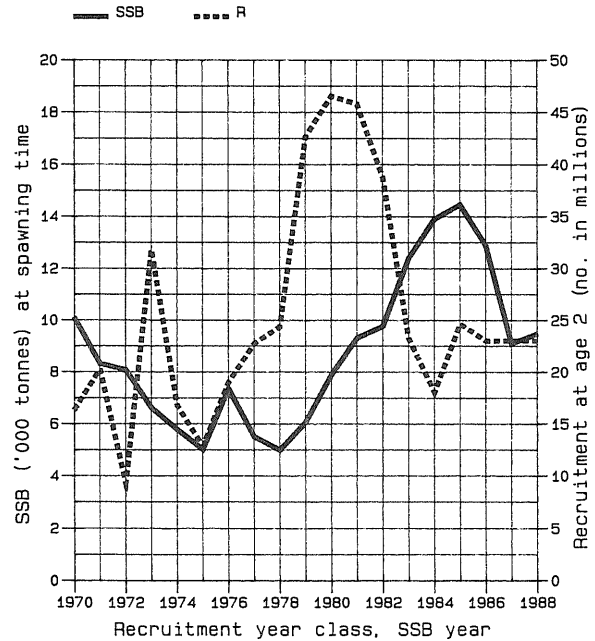
Figure 5.2.7.1

Trends in yield and fishing mortality (F)



A

Trends in spawning stock biomass (SSB) and recruitment (R)

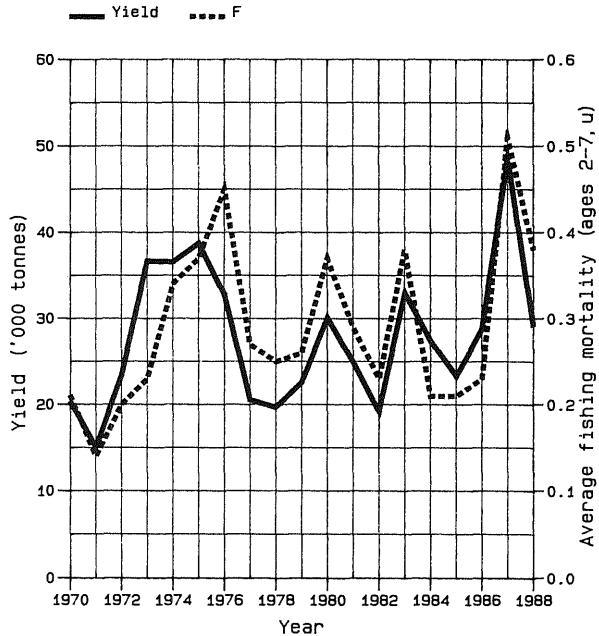


B

FISH STOCK SUMMARY
STOCK: Herring - VIa (South) and VIIb,c
24-04-1989

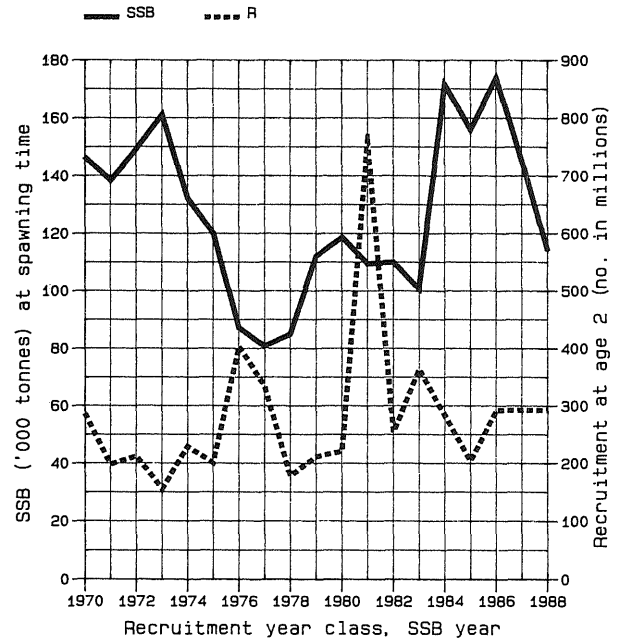
Figure 6.6.1

Trends in yield and fishing mortality (F)



A

Trends in spawning stock biomass (SSB) and recruitment (R)



B

cont'd.

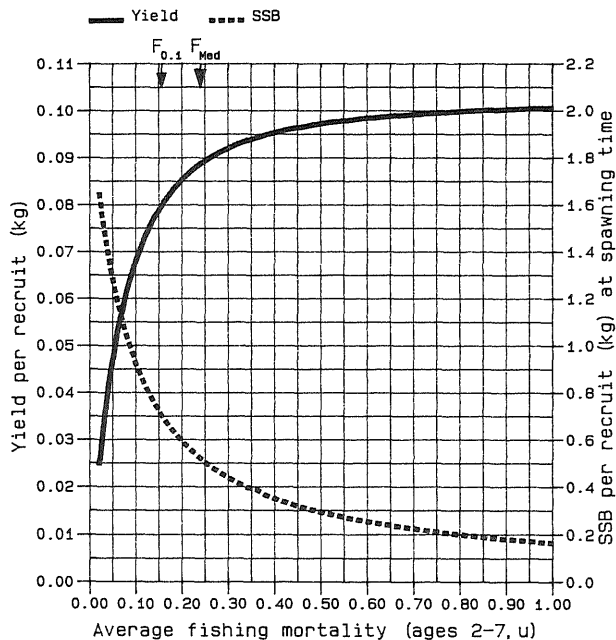
FISH STOCK SUMMARY

STOCK: Herring - Vla (South) and VIIb,c

24-04-1989

Figure 6.6.1 cont'd.

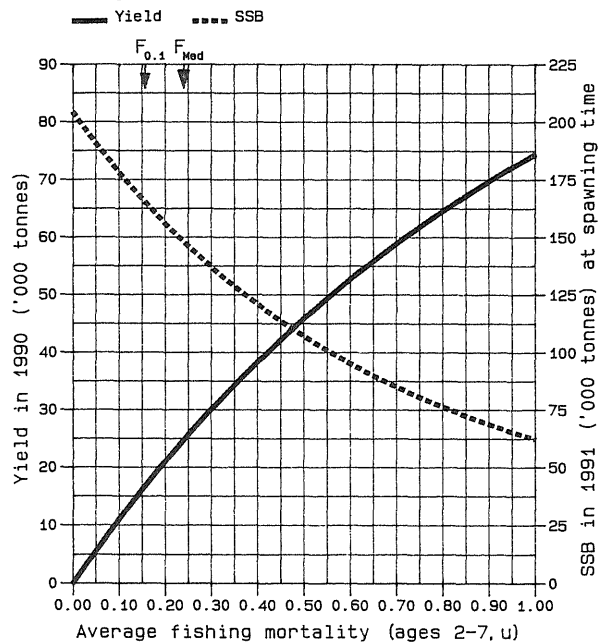
Long-term yield and spawning stock biomass



C

Short-term yield and spawning stock biomass

Assuming catch of 30,000 t in 1989

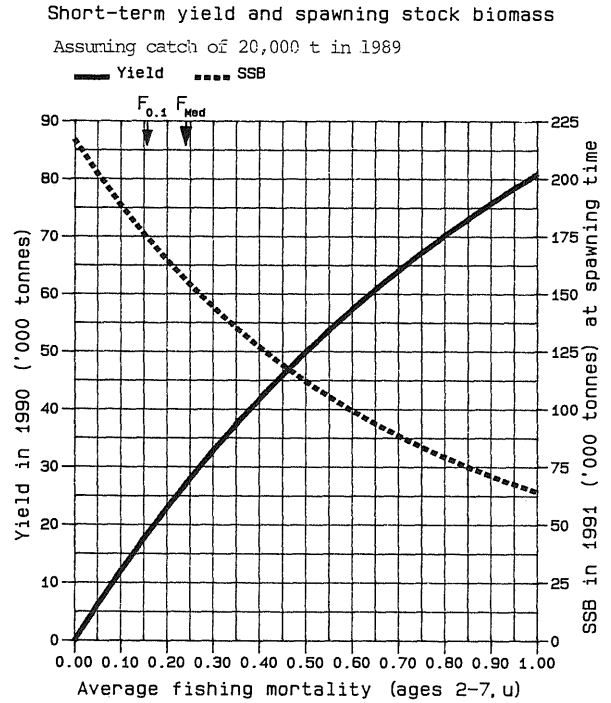


D

cont'd.

FISH STOCK SUMMARY

Figure 6.6.1 cont'd. STOCK: Herring - VIa (South) and VIIb,c
24-04-1989



D

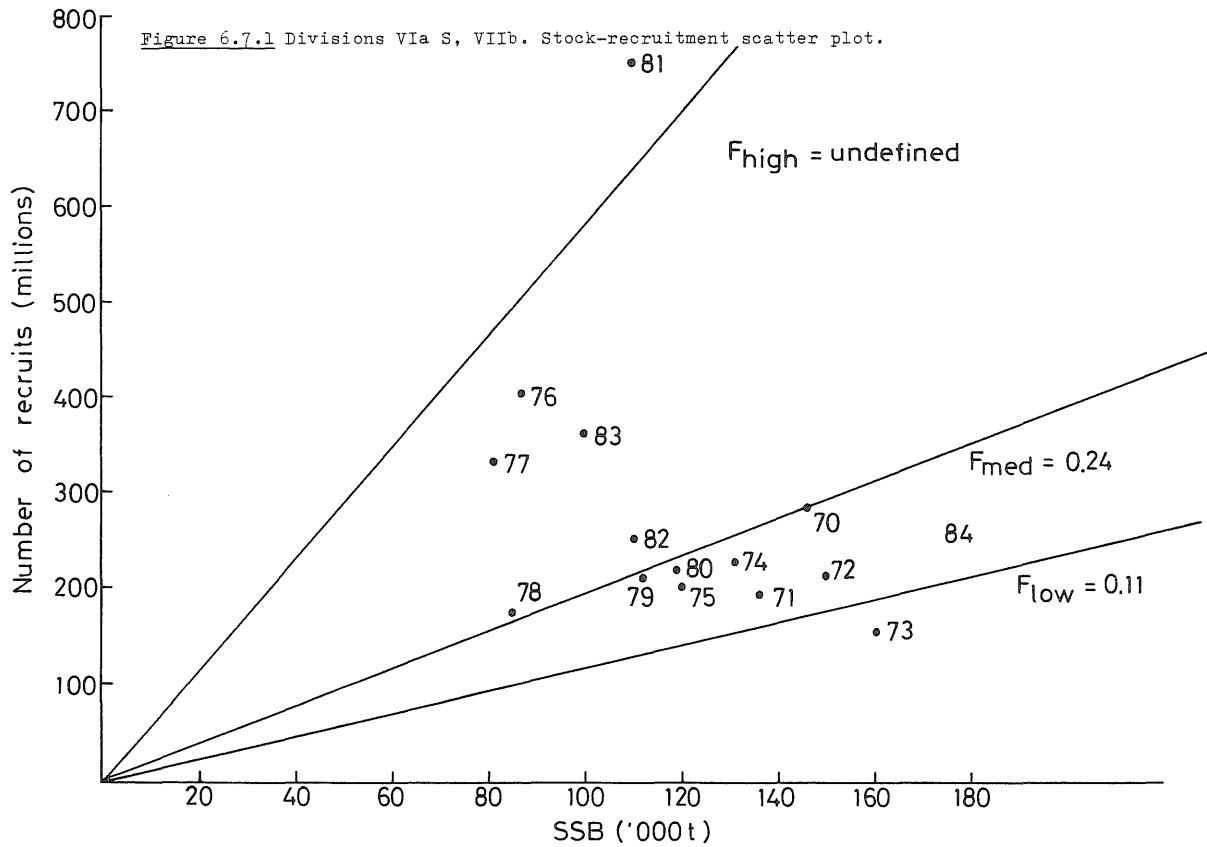


Figure 7.1.3 Herring in Division VIIa. Catch at length 1988.

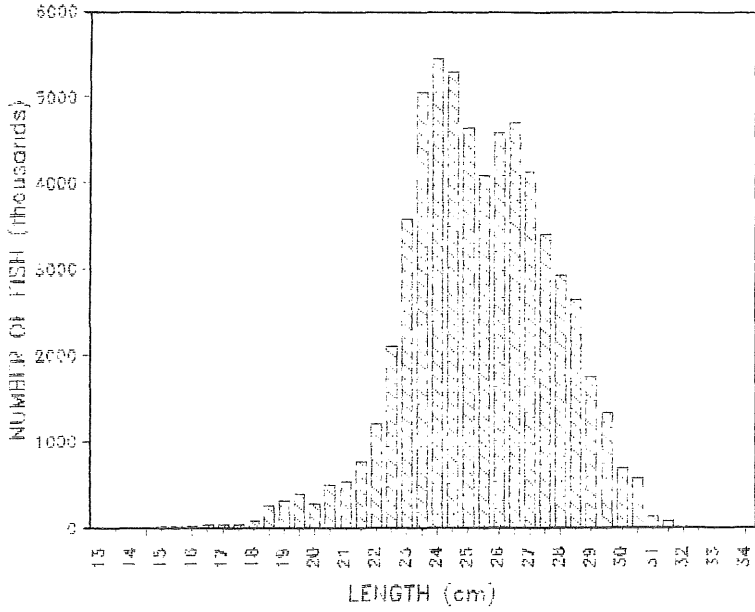
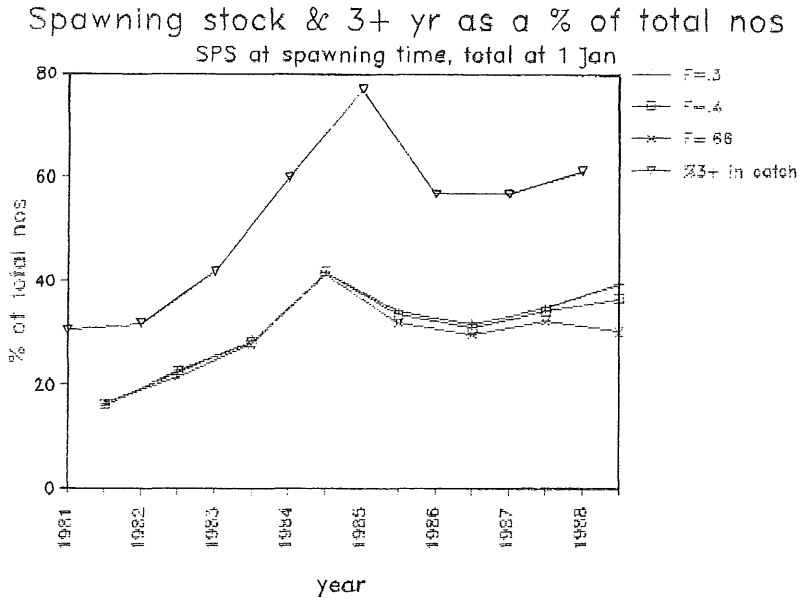


Figure 7.3.3



SPS numbers at spawning time were extracted from VPAs run with $F = 0.3-0.66$ and expressed as a % of total numbers at the start of the year. The values obtained are, therefore, a measure of the survival rate of 2 and a half + ring fish through the year which is not as dependent on input F as fishing mortality etc. This is compared in the figure with the proportion of 3+ fish in the catch.

