

# Catch-per-unit-effort and Biological Data of *Nephrops norvegicus* from the SW Ireland Spanish Trawl Fishery



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## INTRODUCTION

The Norway lobster, *Nephrops norvegicus*, is a burrowing decapod of high commercial interest inhabiting the muddy bottoms of the shelf and upper slope of the NE Atlantic and Mediterranean. On Porcupine Bank (W Ireland) the Spanish trawl fleet carries out a mixed bottom fishery targeting a number of species mainly hake, anglerfish, megrim and *Nephrops*. Fleets from Ireland, France and UK are also involved in this fishery. Although the biology and fisheries of *Nephrops* are well documented for many stocks of the NE Atlantic, references to *Nephrops* from Porcupine Bank are scarce (Hillis, 1988; Hillis and Geary, 1990; Thompson *et al.*, 1998) and only fishery data are periodically updated (ICES, 2001). This study presents data on the Spanish *Nephrops* fishery related to W Ireland and analyses catch per unit effort trends. Preliminary biological data (length weight relationship and length at maturity) are also given.

## MATERIAL AND METHODS

Fishery data (landings and fishing effort) were taken from the IEO data-base and were based on the daily quayside report on landings and trips of the trawl fleet of the A Coruña port (>90% of Spanish landings). Discarding is marginal. The fishing effort index (FEI) chosen was fishing days· average BHP/100. A logarithmic transformation of the carapace length (CL, mm) and weight (W, g) data from 472 individuals sampled in 1997 were fitted to the model ( $W = a CL^b$ ) by the least squares method. Data on ovigerous females were obtained from monthly stratified random sampling of landings. The proportion of the presence of ovigerous females by length class was fitted by a logistic regression.

## RESULTS

### Landings and fishing effort

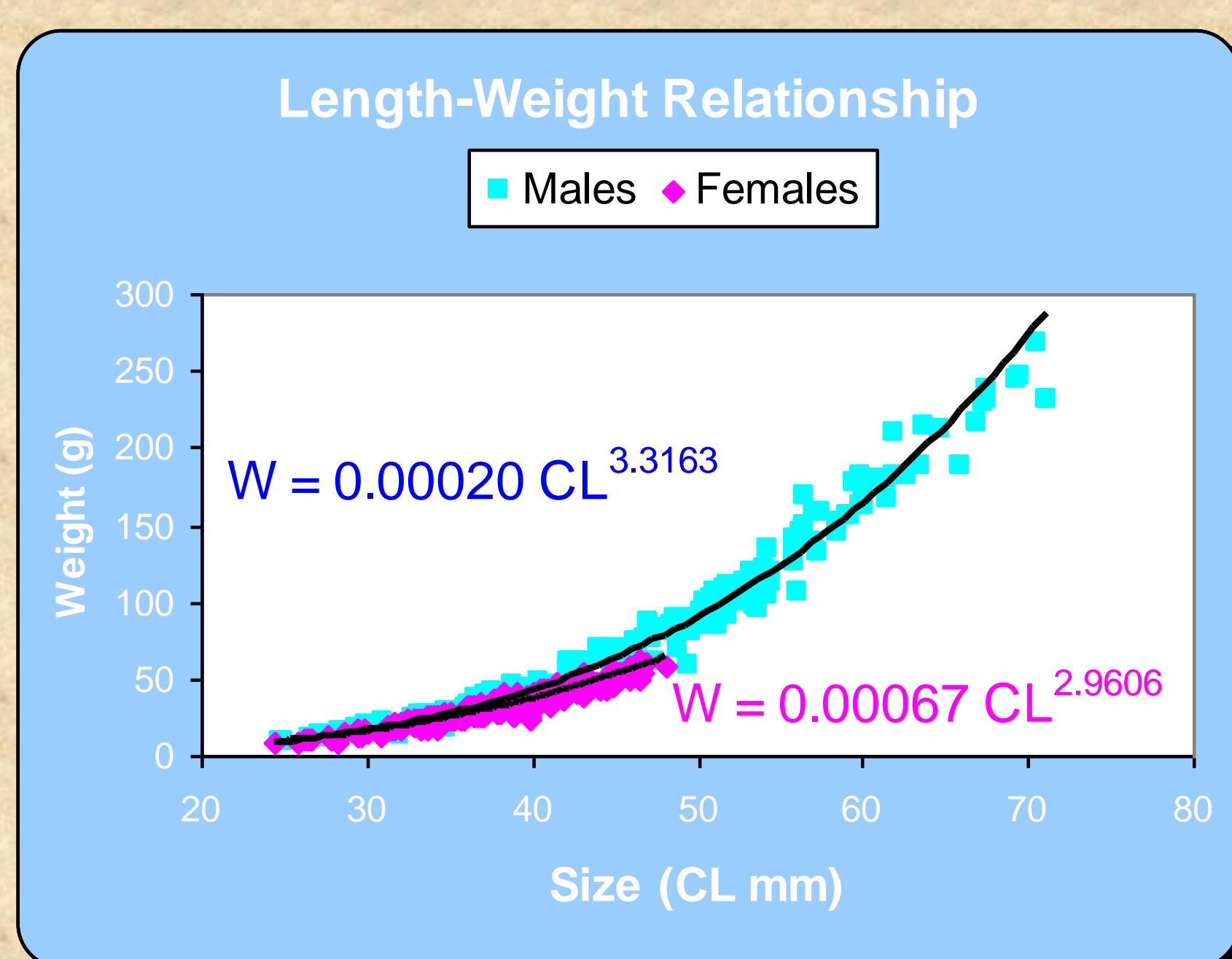
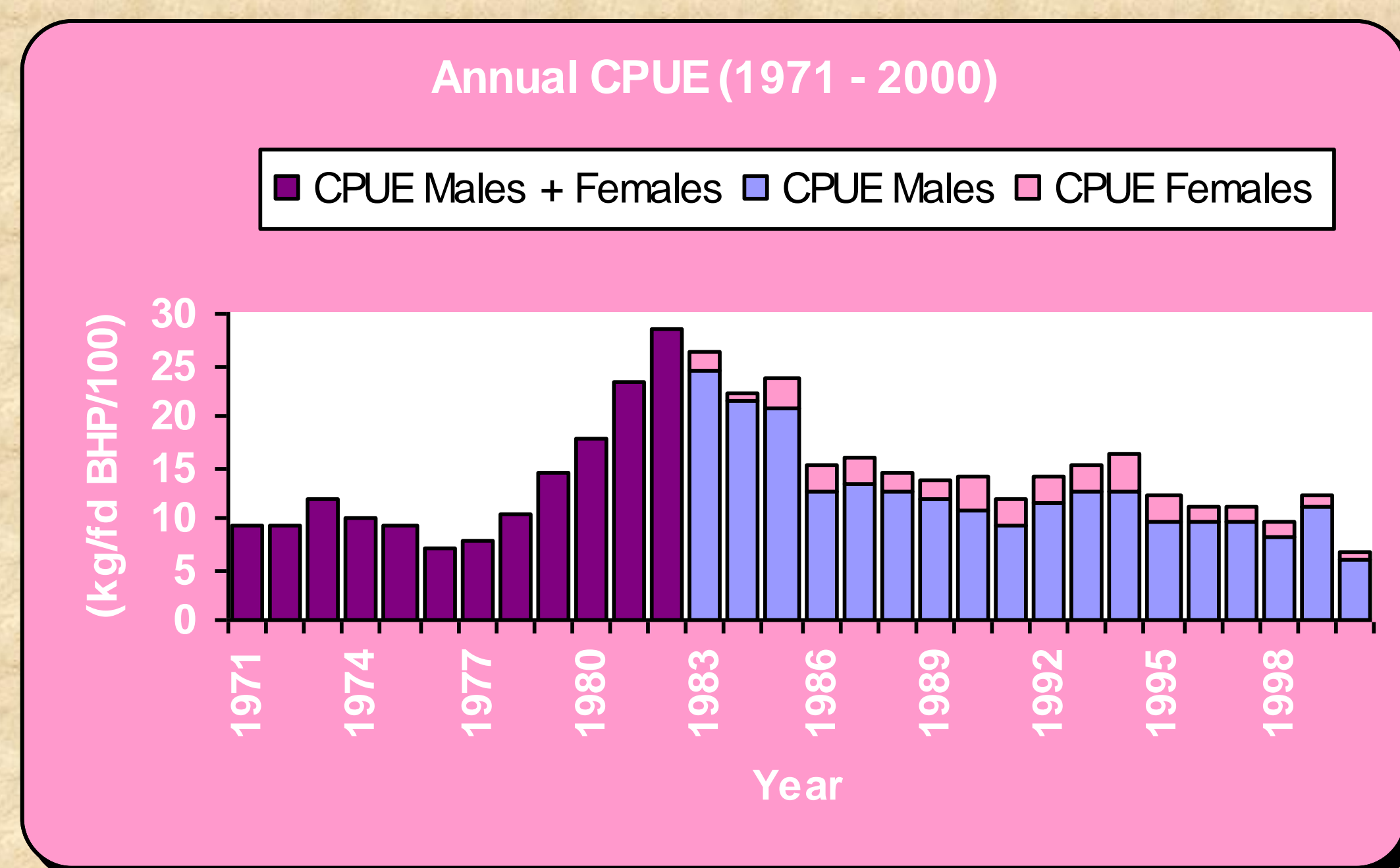
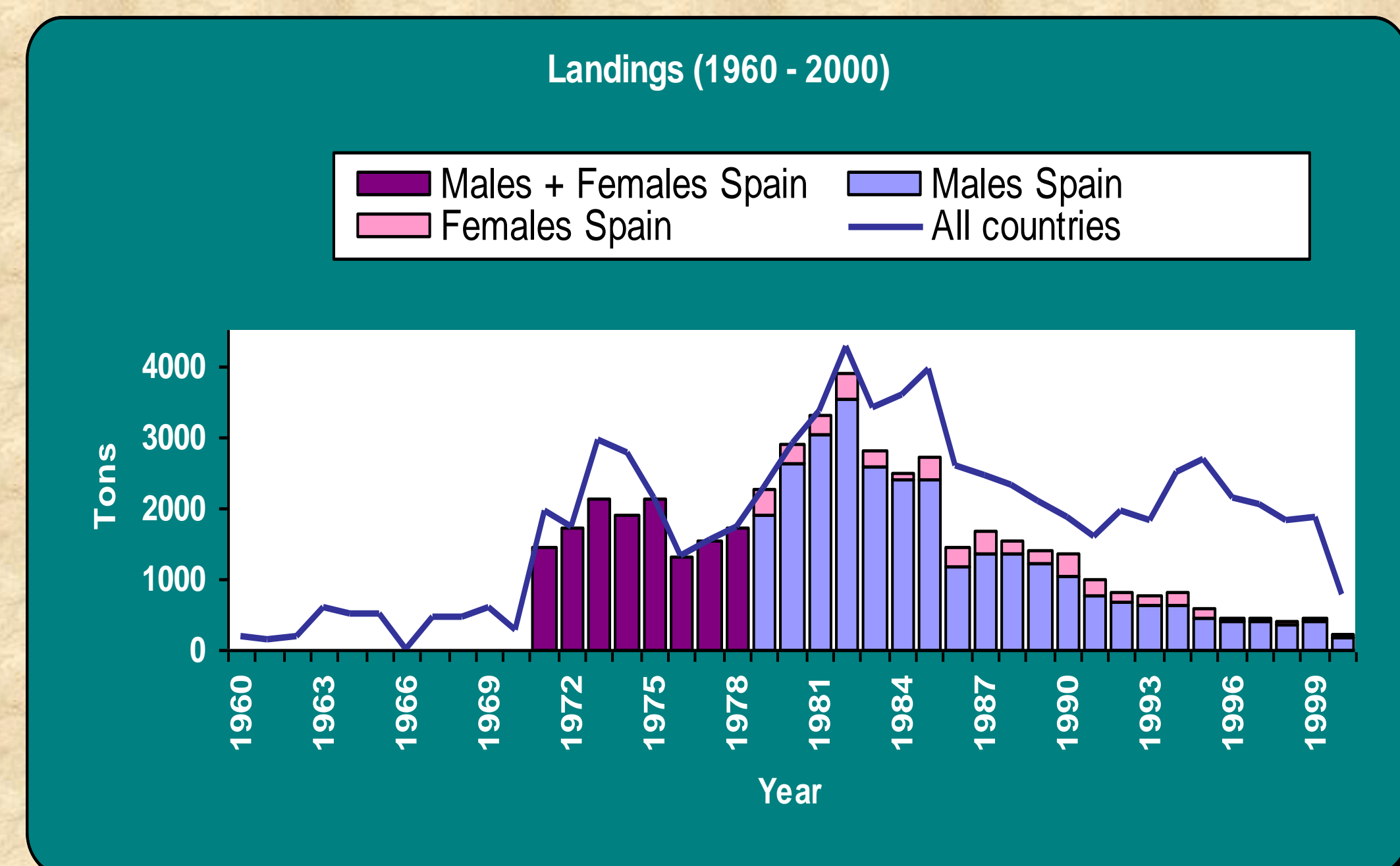
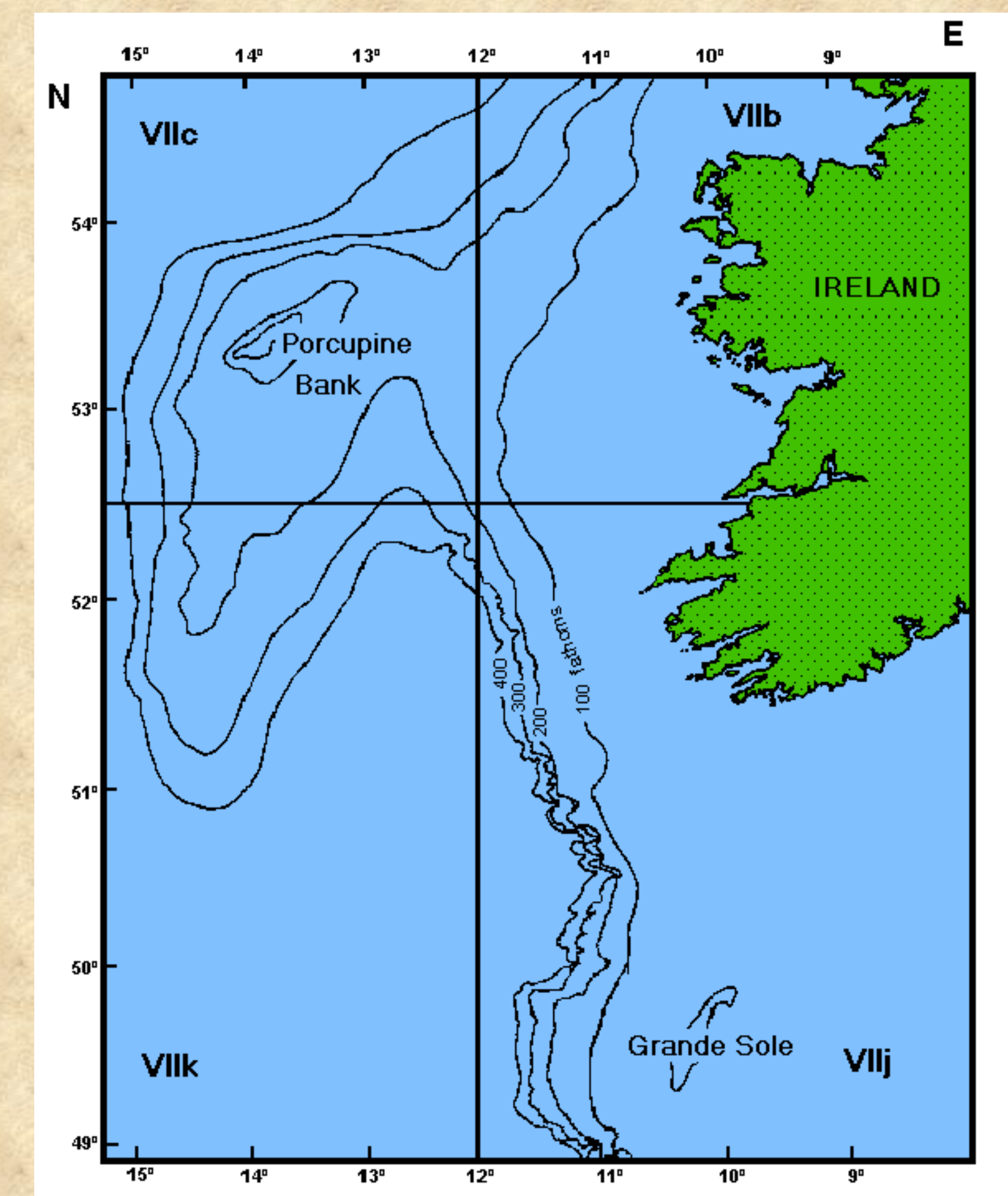
The total international landings from the Porcupine Bank reached a peak at 4289 t in 1982, but have decreased since. The Spanish trawl fleet fished the bulk of the landings until 1991. Spanish landings dwindled in the mid and late 1980s, mainly as a consequence of the continuous decline in fishing effort.

### Catch-per-unit-effort (CPUE)

The time series of CPUE provides a perspective on fluctuations in relative abundance. Between 1980 and 1985 annualised *Nephrops* CPUEs reached the highest values of the time series (a peak of 28.5 kg/FEI in 1982). Since then, CPUE has been quite stable (around 14 kg/FEI), although it has decreased in recent years. Female *Nephrops* are less available for exploitation than males. The CPUE in number reveals a seasonal pattern with maxima in June for females and in July for males [250 and 399 individuals/FEI, (9 and 31 kg/FEI) respectively]. The lowest CPUEs are obtained during September-October in males (119 individuals/FEI, 7 kg/FEI), later increasing slightly until December (251 individuals/FEI, 13 kg/FEI). From September to April female CPUEs are low (around 22 individuals/FEI, 1 kg/FEI).

### Biological data

Length-weight relationships were  $W=0.00020 \cdot CL^{3.3163}$  (males) and  $W=0.00067 \cdot CL^{2.9606}$  (females). An analysis of the covariance of regression coefficients revealed significant differences between the regression line slopes of males and females ( $p<0.001$ ). Following the criterion of the presence of ovigerous females in landings, size at maturity of *Nephrops* from Porcupine Bank was estimated at 26.2 mm CL and the incubation period at 8 months.



## REFERENCES

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 Hillis, J.P. & M. Geary. 1990. ICES CM 1990/K: 22.  
 Thompson, I.S., J.E. Whitmore, J.P. Hillis & J. Carrol. 1998. ICES CM 1998/CC: 2.

