

Seasonality in the condition of megrim and its somatic growth in Cantabrian Sea and Galician waters

J. Landa¹, J. Fontenla², R. Gancedo¹, M. Reparaz³, L. Rodríguez-Fernández², B. Castro³, I. Loureiro¹, A. Antolínez¹, C. Hernández¹

(1) Instituto Español de Oceanografía, Centro Oceanográfico de Santander, Spain

(2) Instituto Español de Oceanografía, Centro Oceanográfico de Vigo, Spain

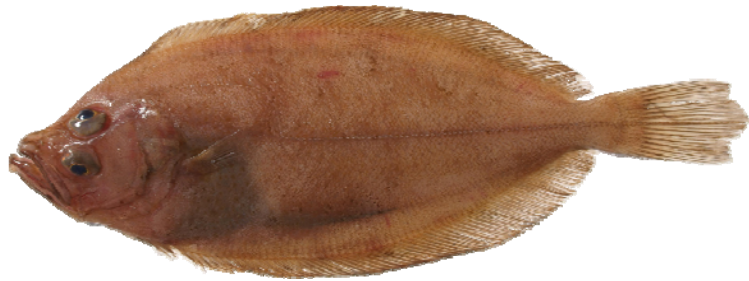
(3) Instituto Español de Oceanografía, Centro Oceanográfico de A Coruña, Spain



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INTRODUCTION



Flatfish

Bottoms: 50-700 m, fine sand

Fishing importance in Europe:
~16,000 t in Atlantic (~16 M€) per year

Iberian Atlantic **stock**
(8.c, 9.a) 



ICES difference four Atlantic megrim stocks
for assessment and management



AIM

- better knowledge of the **reproductive** process

based on

analysis of seasonal variation of the **condition**

- deeper knowledge of the **weight-related biological parameters**

based on

robust and updated **weight-length relationships** and **weight conversion** parameters

advance the **knowledge of the biology** of megrim

accurate and reliable **assessment** of the megrim Iberian Atlantic **stock**

improve resource **management**



Period:

22 years (1998-2019)

Sampling size:

7458 specimens (98% from 8.c)

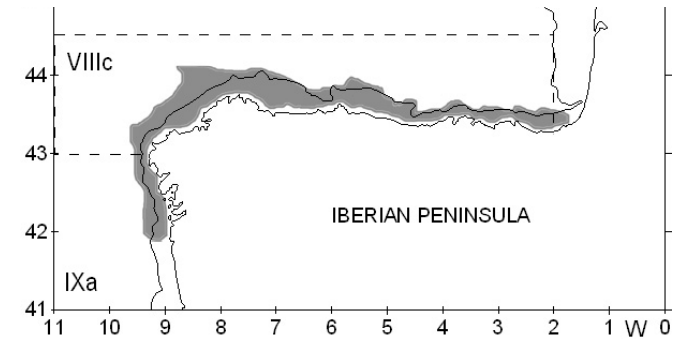
Sampling sources:

Mainly from commercial catches (97% of specimens)

Specimen data collected:

- **Lt:** total length (cm)
 - **Wt:** total weight (g)
 - **Wg:** gutted weight (g)
- } - Wt & Wg obtained in 61% of specimens.
- Wt or Wg in the rest

Study area

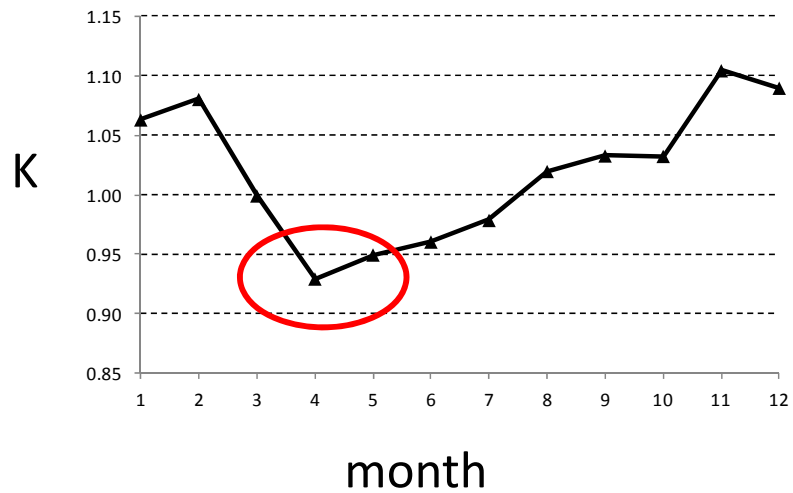


RESULTS

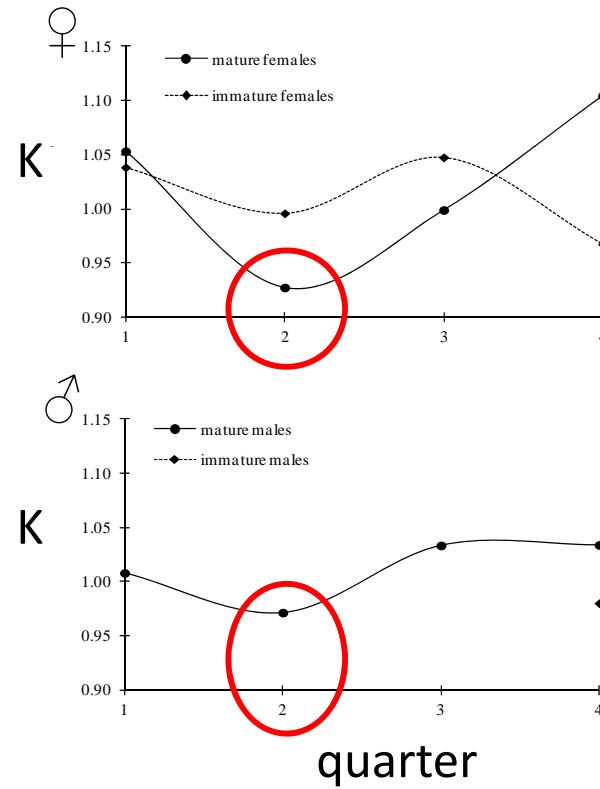
Le Cren's relative Condition factor (K)

$$K = Wg / a Lt^b$$

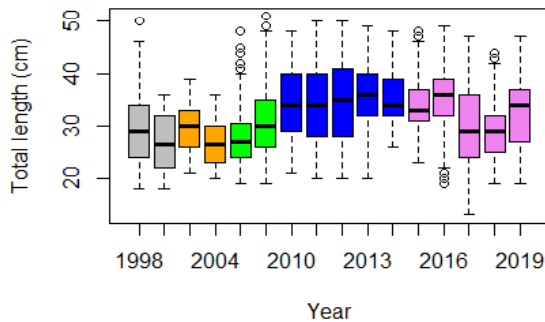
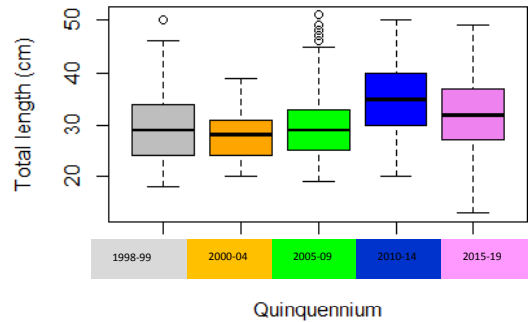
by month



by quarter



Weight-length & Weight-weight relationships



The temporal factor, relevant for stock assessment process, was considered in the final models.

The “five-year period (quinquennium)” showed a more adequate sample representativeness than the “year”.

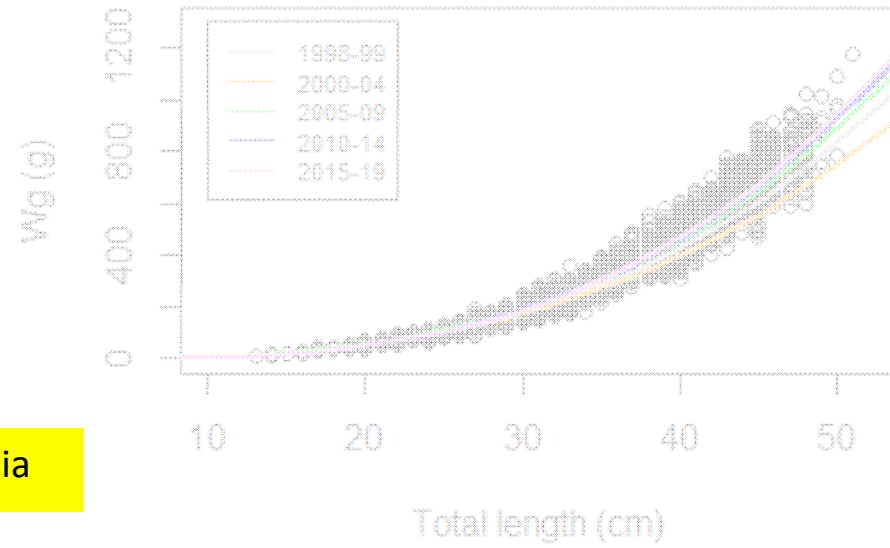
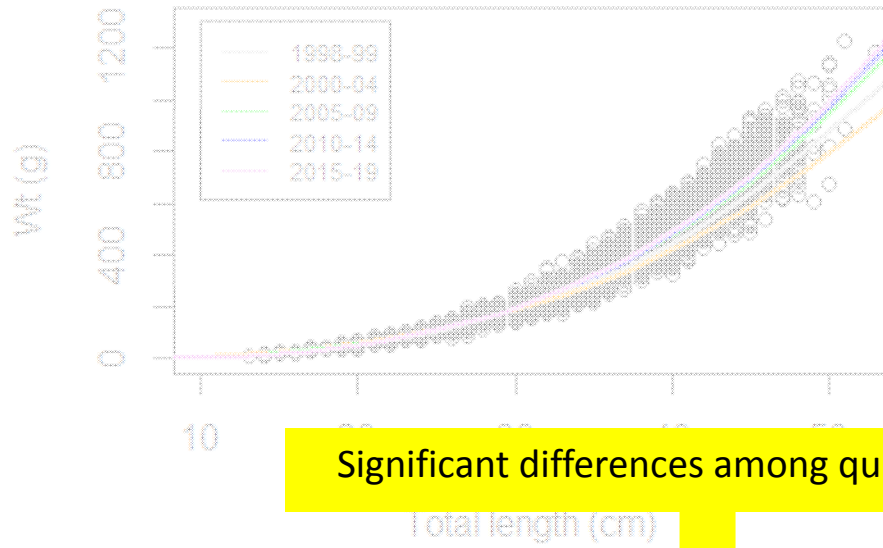
Final models:

- Wt-Lt (power model): $\log W_t \sim \log L_t \times \text{quinquennium}$
- Wg-Lt (power model): $\log W_g \sim \log L_t \times \text{quinquennium}$
- Wt-Wg (linear model): $W_t \sim W_g \times \text{quinquennium}$



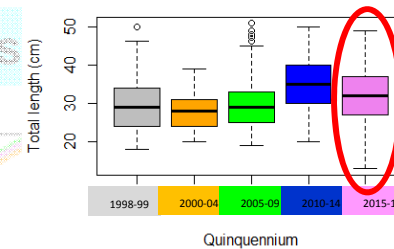
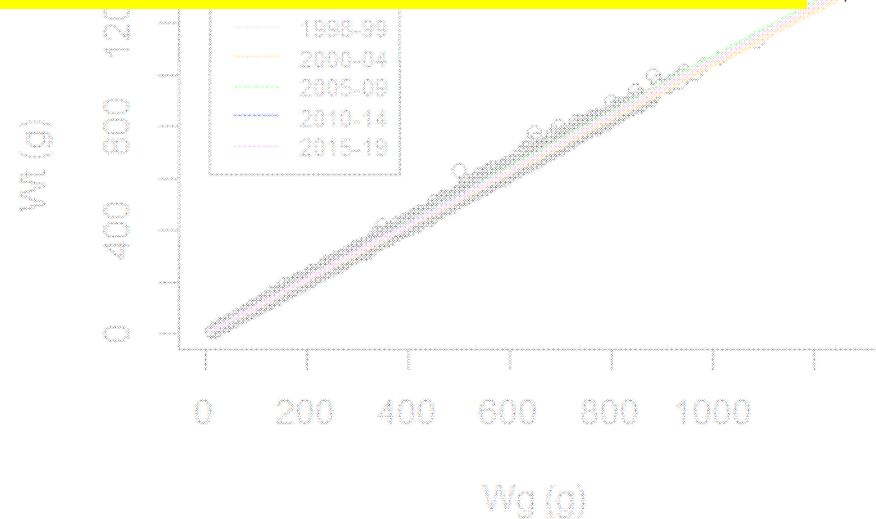
RESULTS

Weight-length relationships



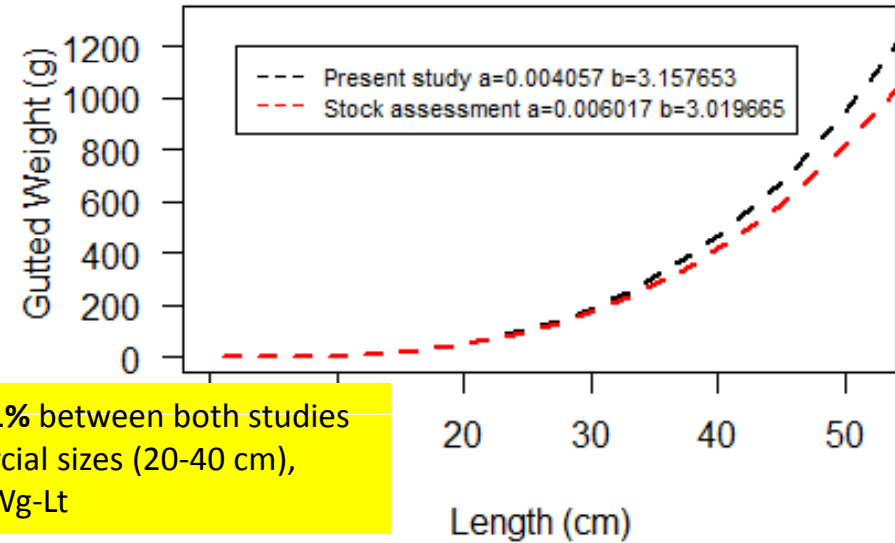
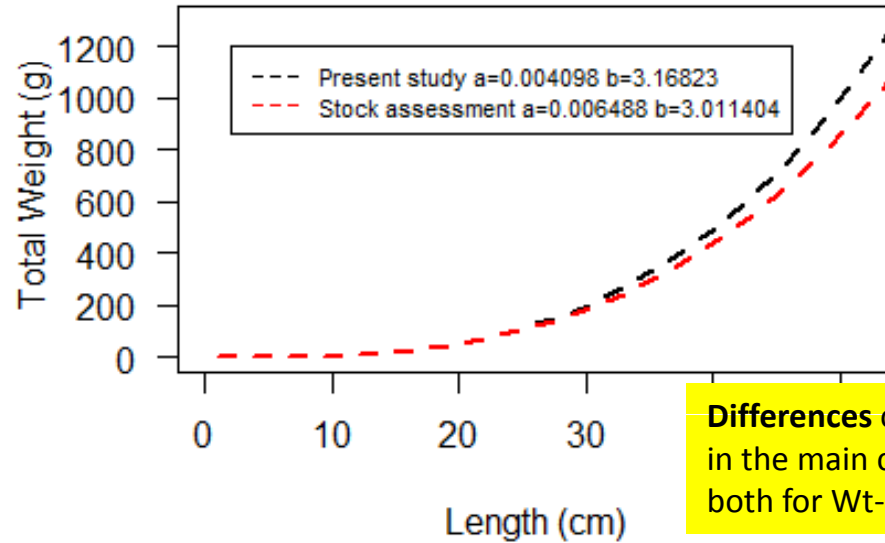
Significant differences among quinquennia

- Selected the parameters of the **most recent quinquennium (2015-19)**: it is the one that best represents the overall commercial range of sizes

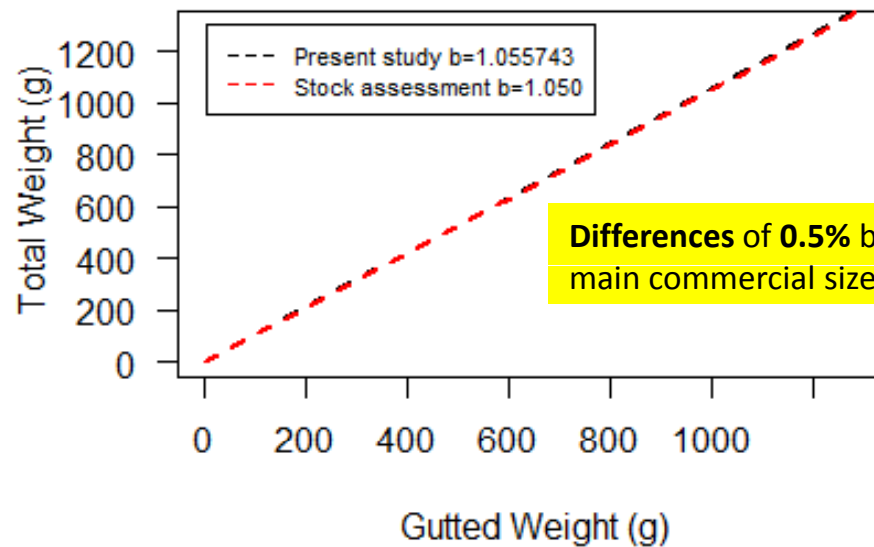


RESULTS

New parameters for stock assessment and comparison with those currently used



Differences of ~1-11% between both studies in the main commercial sizes (20-40 cm), both for Wt-Lt and Wg-Lt



Differences of 0.5% between both studies in the main commercial sizes (20-40 cm)



CONCLUSIONS

- The seasonality of **condition factor** shows its relevance as indicator of the nutritional / reproductive status of megrim.
- The new somatic parameters from **weight-length relationships** and **weight conversion factor** are available to be used in the oncoming annual stock assessment process.

