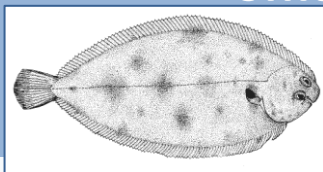


Solea solea: landings data and LPUE standardization from official logbooks in Atlantic Iberian waters

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Introduction

Standardized LPUEs (Landings per Unit of Effort) derived from fishery-dependent data can be used as a proxy of the species abundance.

Facts

- Common sole (*Solea solea*), important fishery resource, high economic value, BUT
- catches of sole species managed as a single unit in Iberian waters: possible negative implications on species exploitation rate
- Research surveys: not appropriate to monitor the species population due to its coastal distribution (species depth range: 100m-200m)
- No information on stock structure: subdiv. ICES 8c and 9a as a management unit

Objectives

- Compilation and analyses of official landings data
- LPUE standardization for *Solea solea* of Atlantic Iberian waters

Conclusions

- OTB CN: reliable official *S. solea* landings data
- OTB GC: Mixture of *Solea* species in official data. LPUE can be corrected applying the ratio from at-sea scientific sampling.

Next

- Include Portuguese data
- Combined LPUE index for CN and GC

Methods and Results

- Time series: 2009-2020
 - LPUE: landed weight of *S. solea* per trip/fishing days per trip
- Source of data
- Landings data: Official logbooks from Cantabrian-Northwest (CN) and Gulf of Cadiz (GC)
 - At-sea data: scientific observers on board sampling program
 - On-shore data: on-shore sampling program

Why bottom otter trawl?:

✓ OTB: at-sea and on-shore sampling data allow disaggregation of species
 X GNS/GTR: only on-shore data

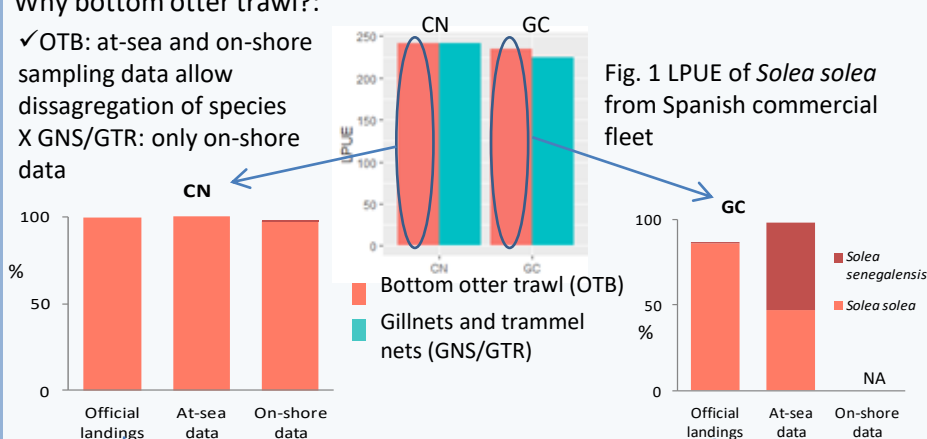


Fig. 2. Proportion of *S. solea* and *S. senegalensis* vs. *Solea* spp. in official landings, at-sea sampling data and on-shore sampling data.

NO

Management implications for *S. solea*?

YES

Nearly 100% of *Solea* species correspond to *Solea solea*

LPUE estimated based on *Solea* species proportions in each harbour region and quarter from at-sea sampling data

Excluding: landings=0; landings>quantile 0.99 and vessels present <3y

Preliminary LPUE standardization

Generalised Linear Mixed Models, Gamma distribution

- GLMM
- Fixed effects → year, month, harbour province, vessel category
 - Random effects → year:month, year:harbour province

$$LPUE \sim year + month + harbour\ province + vessel\ category + (1|year:month) + (1|year:harbour\ province)$$

