INTERREG IVA project CRESH

CRESH PROJECT

Cephalopod Recruitment from English Channel Spawning Habitats

Céphalopodes Recrutement Et Suivi des Habitats des pré-recrues de Manche

Presentation of the CRESH project

List of project tasks:

Habitat preferences

1) Review existing knowledge / search databases
2) New observations of natural egg-laying habitats
3) Infer "potential spawning areas" from habitat data

Comparison of eggs & juveniles from different pilot areas

4) egg & juvenile quality (survival + physiology)
5) Trophic signatures (stable isotopes)
6) Genetic differences (using molecular data)
7) Trace elements

Relationships between pre-recruits and resource abundance

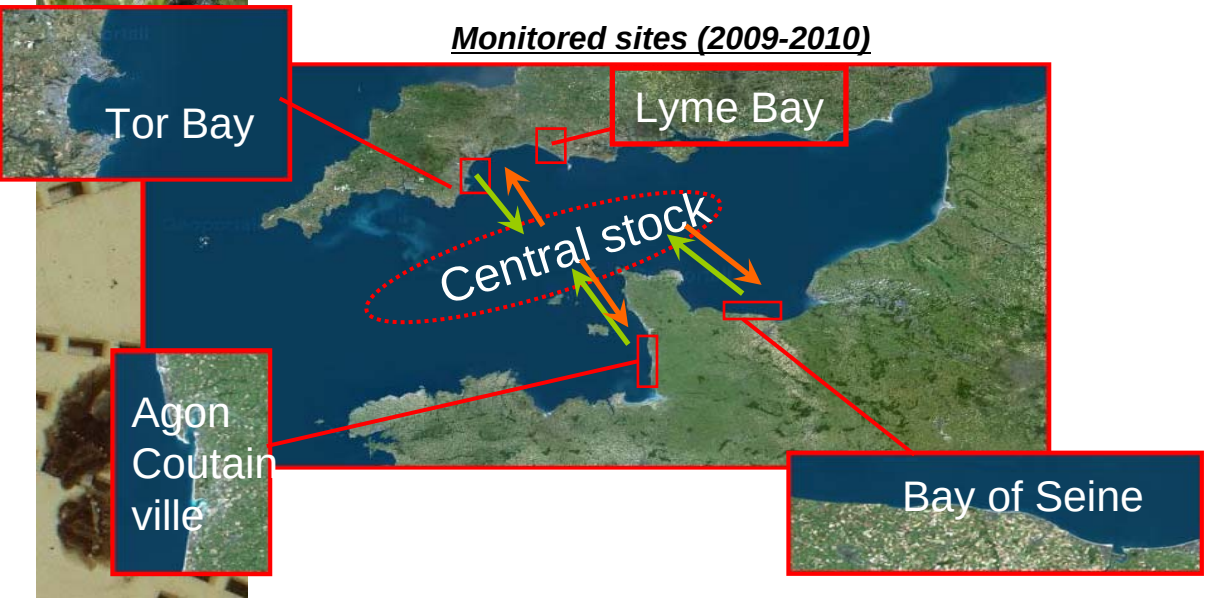
8) Integration into stock (and recruitment) assessment
9) Information to stakeholders and recommendations for habitat management

Tasks 4, 5, 6 and 7 : Comparison of eggs & juveniles from different pilot areas Impact of different habitats of the English Channel coasts on the physiological performances of the cuttlefish juveniles Sepia officinalis L.

PHD student: Georges Safi, Supervisor: Dr. Koueta Noussithé

- Improve the knowledge of favourable habitats to the reproduction of cuttlefish
- Study the effect on growth and survival of cuttlefish at the first stages of their life

Monitored sites (2009-2010)

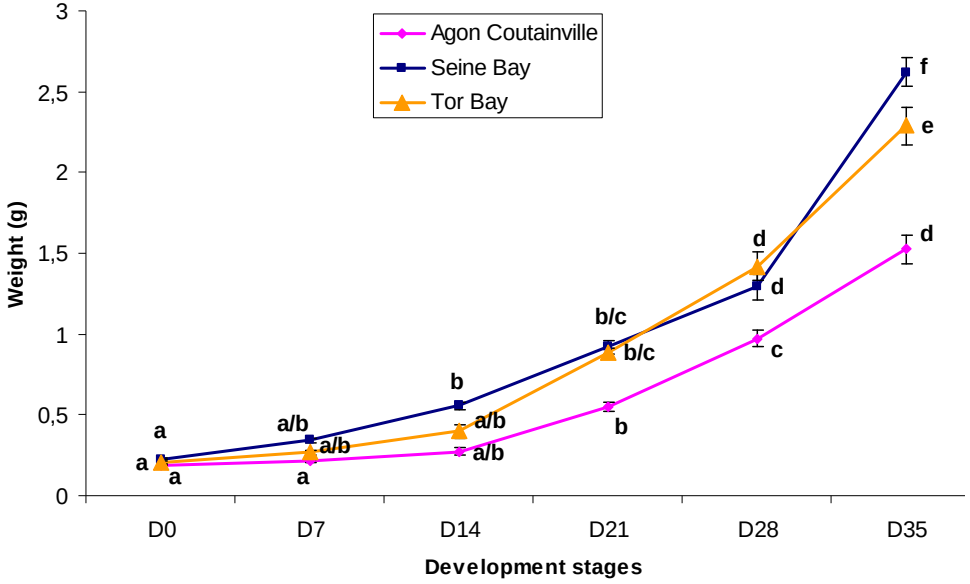


- Cuttlefish eggs are collected from the different monitored sites
- Eggs were incubated in their site before being collected
- 150 hatchlings/site are then taken and all batches reared in the same conditions
- Rearing period : 35 days
- Sampling : every 7 days

Task 4 : Impact of different habitats of the English Channel coasts on the physiological performances of the cuttlefish juveniles Sepia officinalis L.

Significant differences in growth are marked between juveniles coming from Agon Coutainville compared to those coming from the 2 other sites

Growth



Juveniles from Bay of Seine (East Cotentin-Fr) and Tor Bay (UK) present better growth performance compared to those of Agon Coutainville (West Cotentin-Fr)

Cuttlefish stock assessment

- Context :
  - two usual models have already been used :
    - Depletion model
    - Virtual Population Analysis
    - Problem : not suitable for short lifespan species which catch at age is difficult to determine

- Objectives :
  - Develop a two stage biomass model used to assess the South-African squid and the Celtic Sea herring
  - Link the pre-recruit stage on the French and UK coast and the abundance of the stock in the centre of the English Channel to predict the abundance available for the fishermen

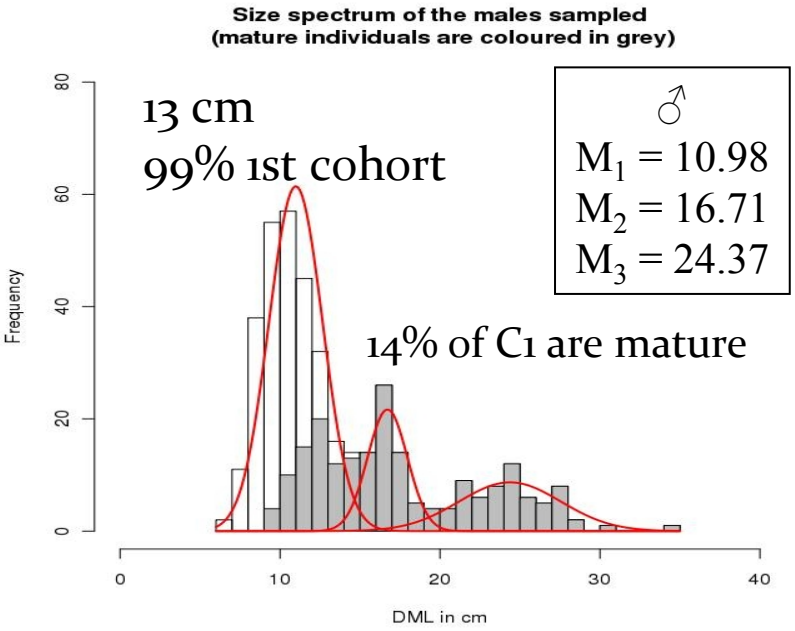
Cuttlefish stock assessment

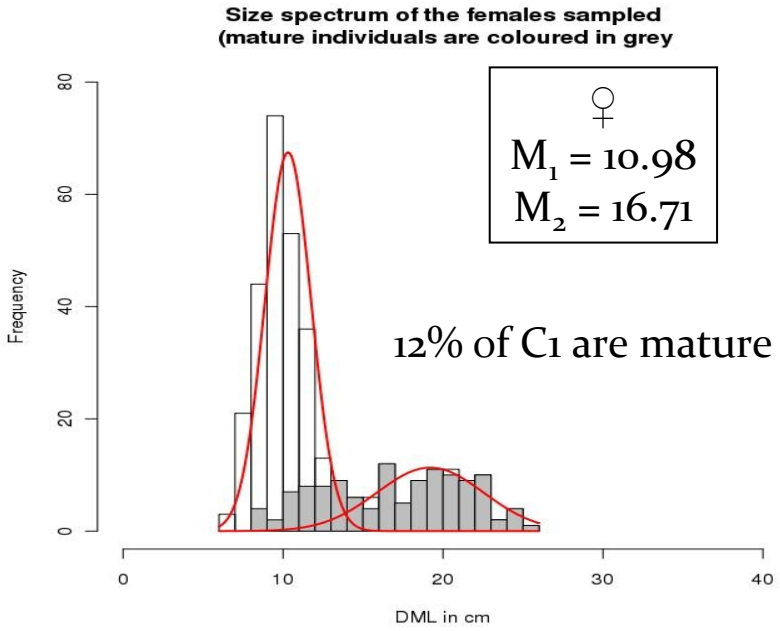
- Collect landings and survey data provided by the CEFAS and the Ifremer
- Update the life cycle knowledge to know if a percentage of the population reproduces during the first year (preliminary results shows around 10-15% of specimens are mature the first year, work is still in progress)
- Spatial distribution of the trawl fishing effort
  - Winter : Centre of the Channel
  - Summer : Close to the coast
- Indices of abundance :
  - CPUE on the whole year
  - BTS VIId survey index in july
  - CGFS survey index in october

Task 8 : integration in stock assessments

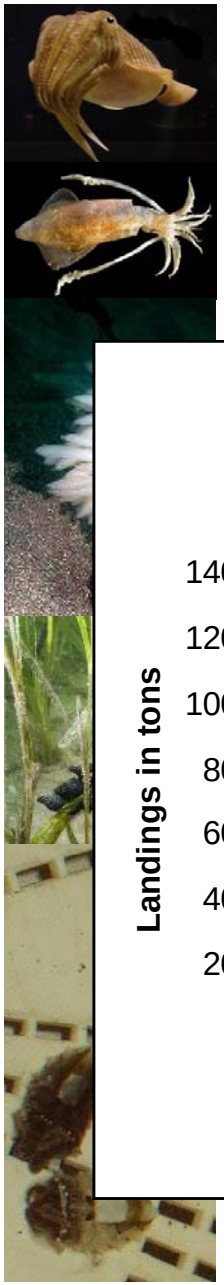
- Integration of new results about cohort strength into population modelling and consequences for the exploitation assessment.

Length-structure per sex



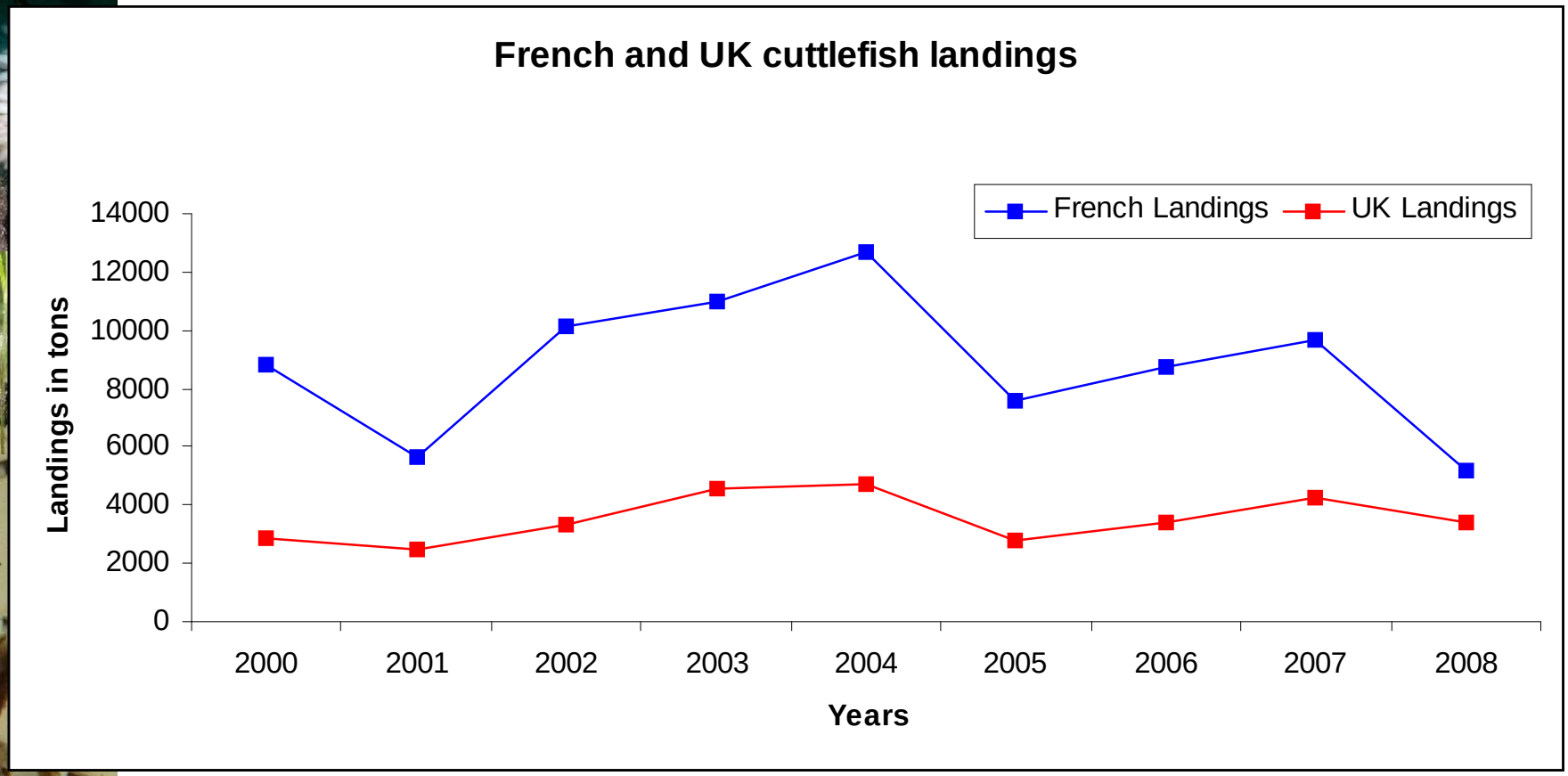


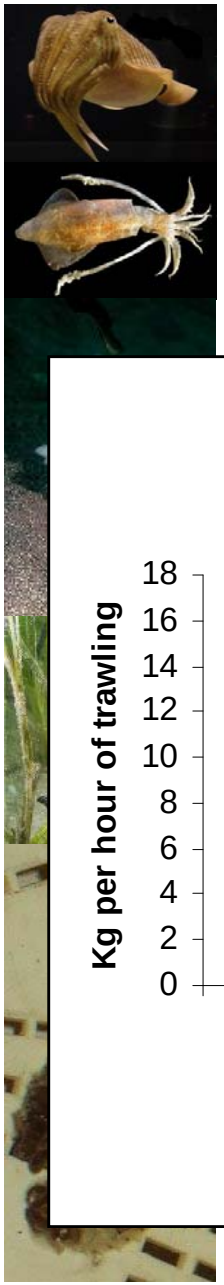
English Channel Cuttlefish (*Sepia officinalis*) stock structure in the reproduction period



Task 8 : integration in stock assessments : results so far

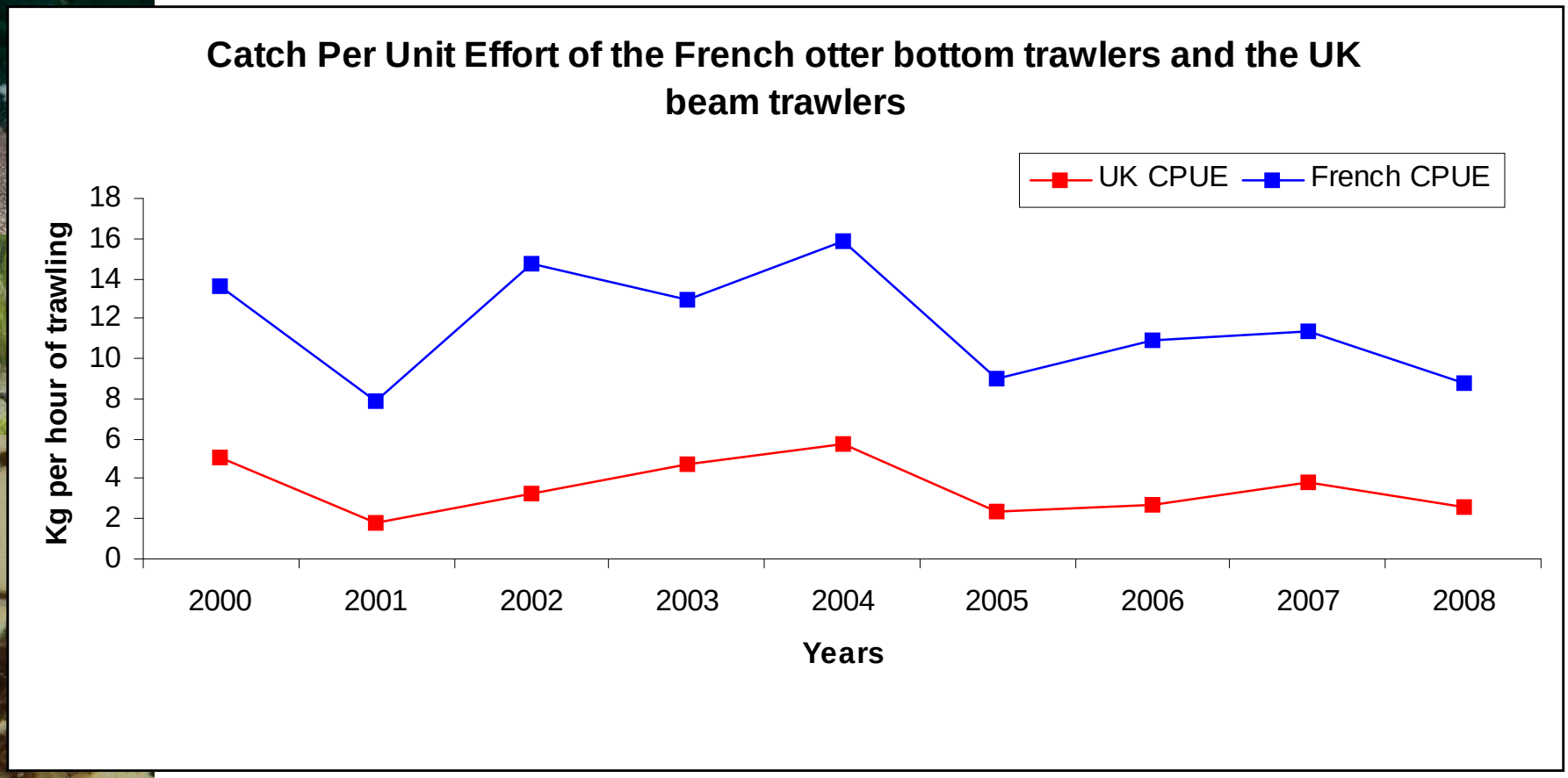
Landings of the French and UK fishermen

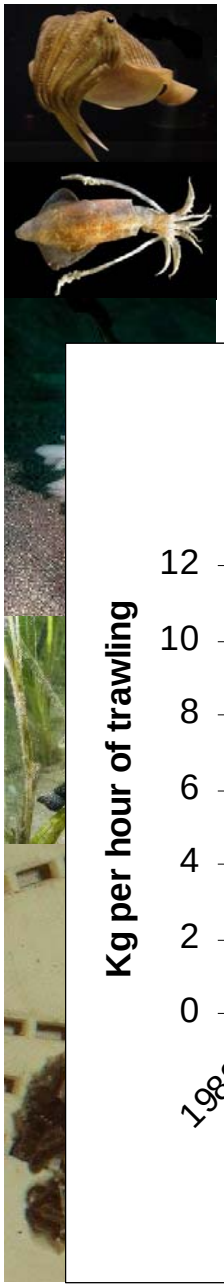




Task 8 : integration in stock assessments : results so far

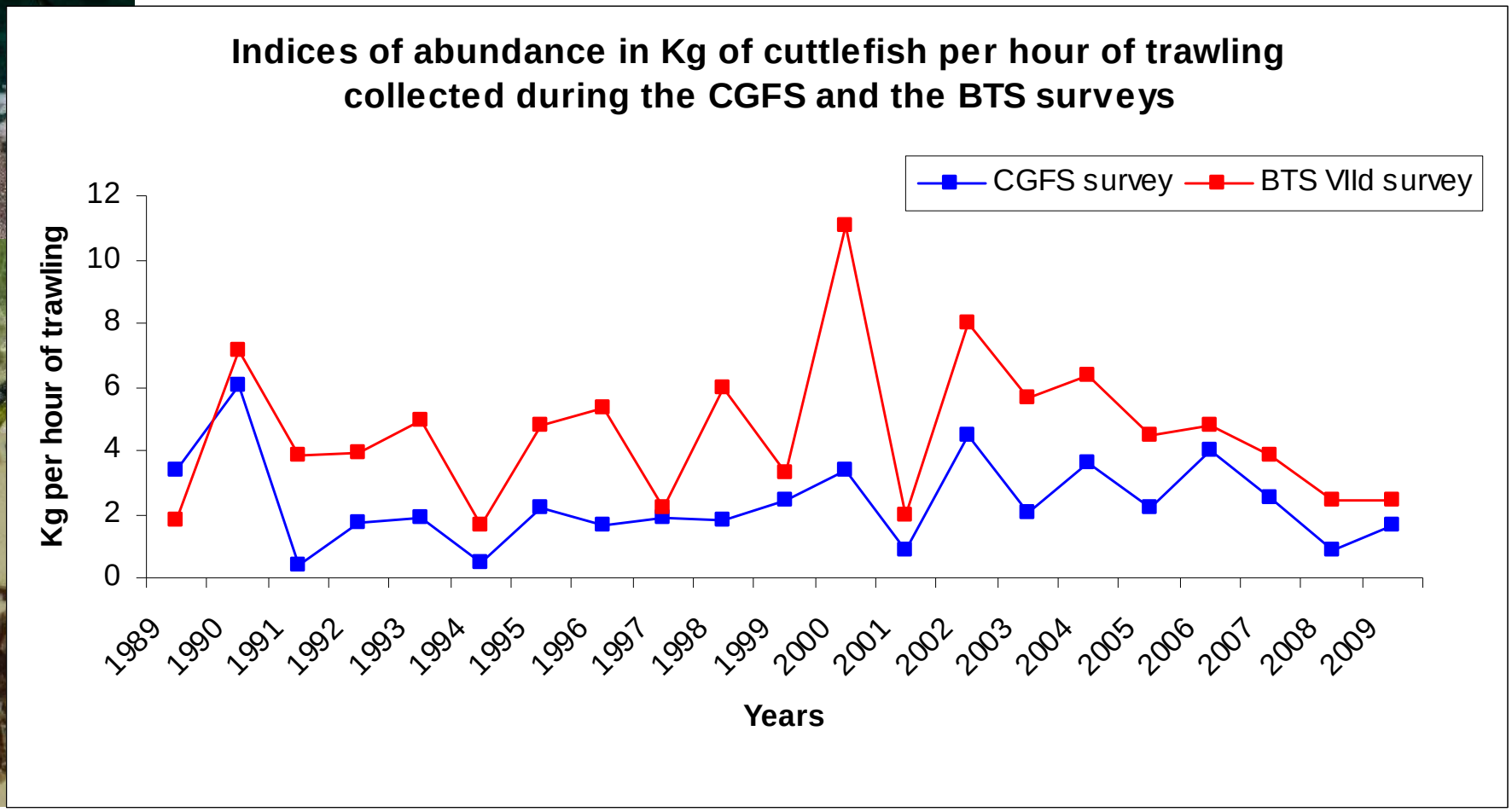
Catch Per Unit Effort computed with the French and UK data





Task 8 : integration in stock assessments : results so far

Indices of abundance computed with the CGFS and BTS surveys



Thank you for your attention…