



## **PUBLIC HEARING**

**25 January 2018**

# **MULTIANNNUAL PLAN FOR SMALL PELAGICS STOCKS IN THE ADRIATIC SEA**

**European Parliament - Room Paul-Henri Spaak (PHS) 4B001**

## **PANEL I**

**The status of fish stocks and environmental aspects**

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The multiannual plans are a good idea for fishery management purpose

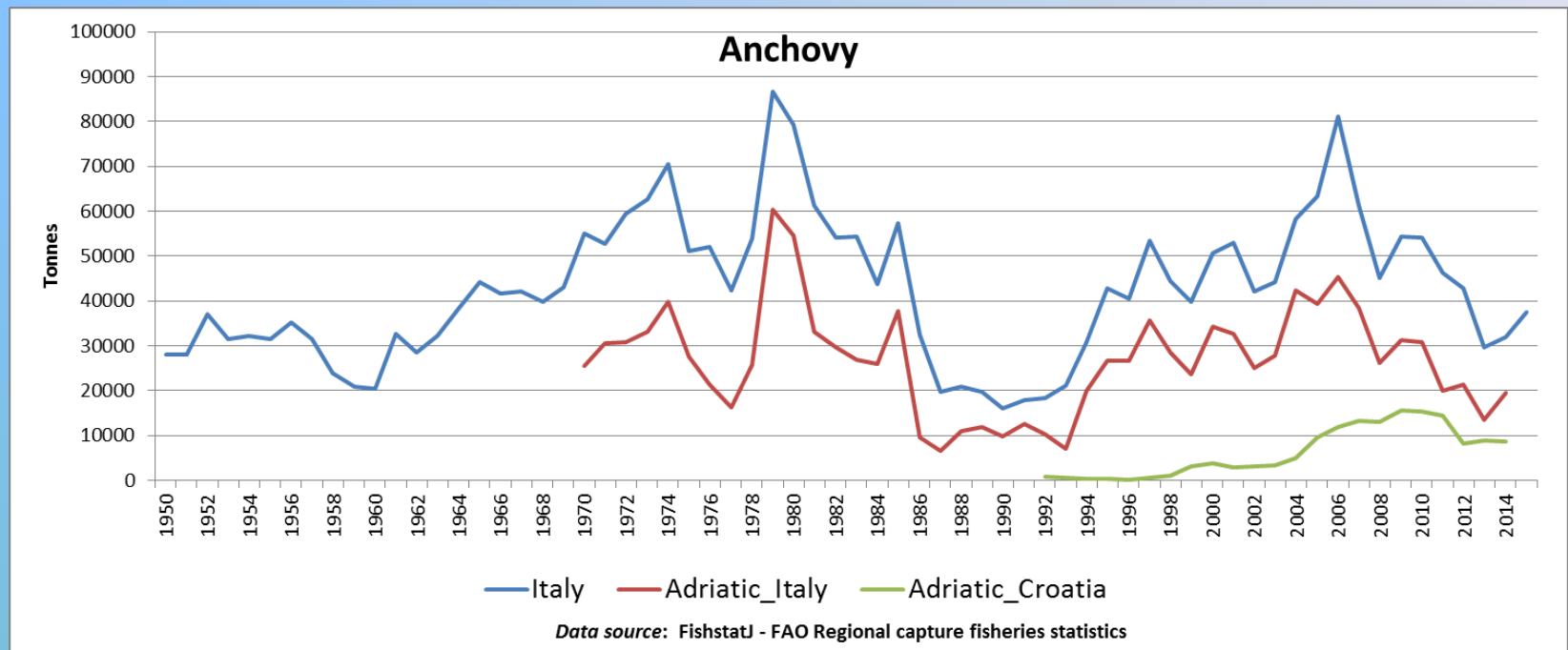
On the other hand, multiannual plans have to be constructed on reliable data to work well and guarantee sustainable exploitation of resources (ecological, economic and social sustainability)

In the case of small pelagics in the Adriatic Sea, data are poor and show many uncertainties, providing conflicting indications

The main weak points are showed below



## Catches of anchovy from 1950 to 2015



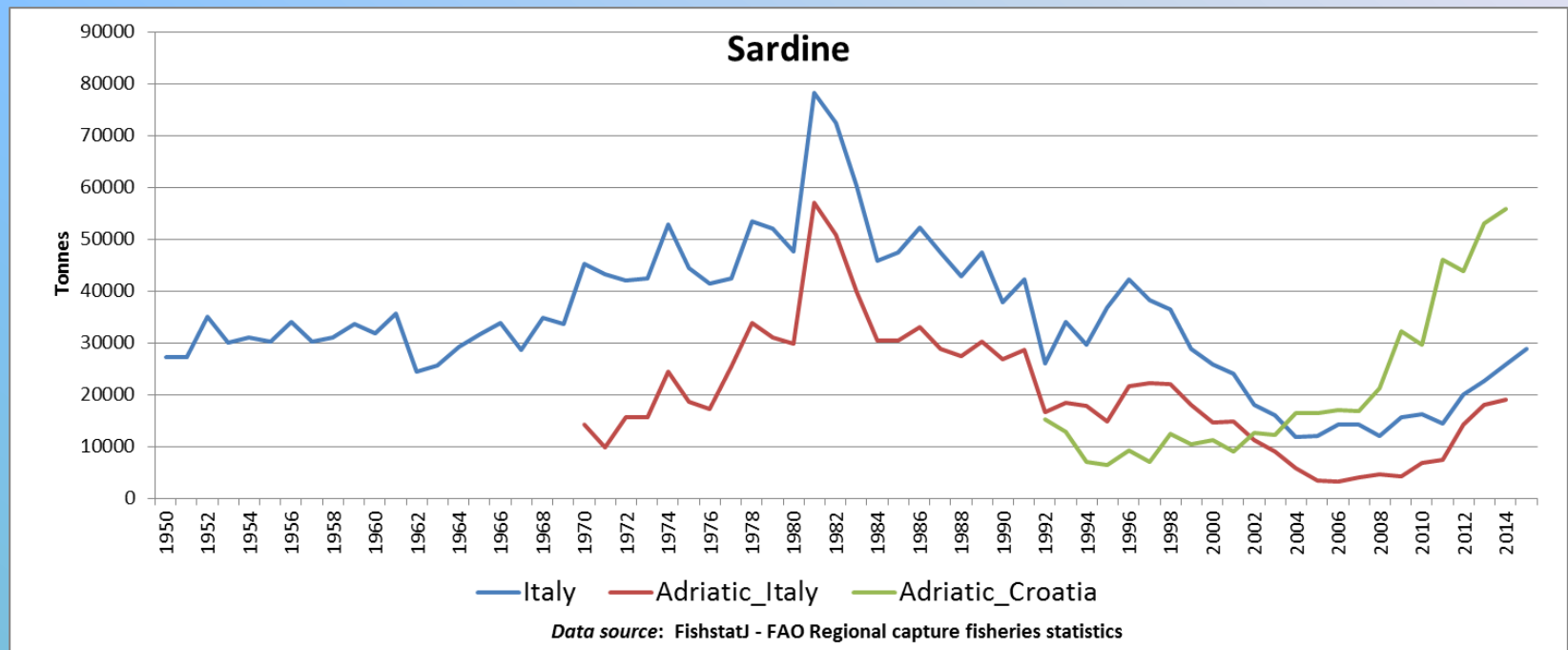
Total Italian catches of anchovy show wide fluctuations

Italian catches in the Adriatic amounts to more than 50% of total Italian catches

Any restriction to catches in Adriatic affects the whole Italian fishery of small pelagics



## Catches of sardine from 1950 to 2015

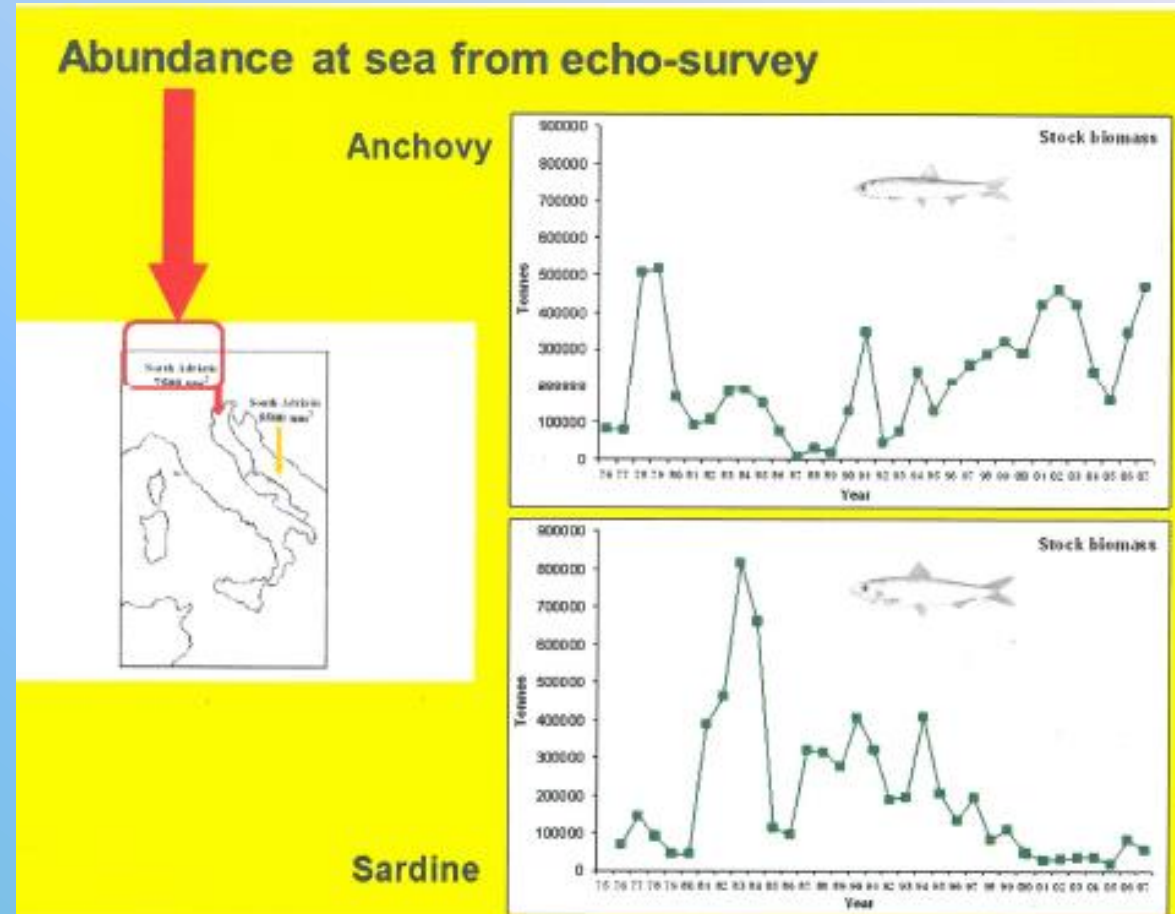


Total Italian catches of sardine show wide fluctuations

Ratio between Italian and Croatian landings in the Adriatic changes throughout the time

# Biomass evaluation from Echo-Survey performed in the northern and central Adriatic Sea (GSA 17 – Italian side) from 1976 to 2007 by the CNR-ISMAR of Ancona

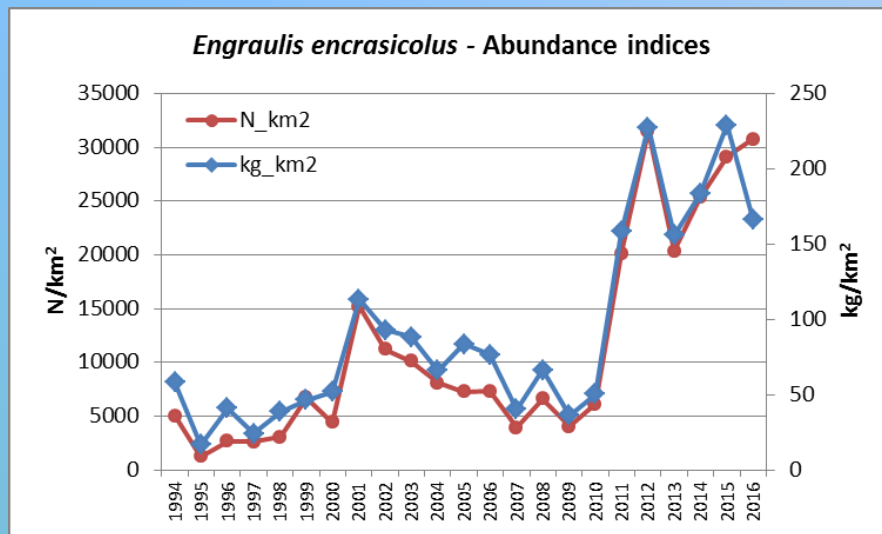
(from Santojanni et al., 2008 )



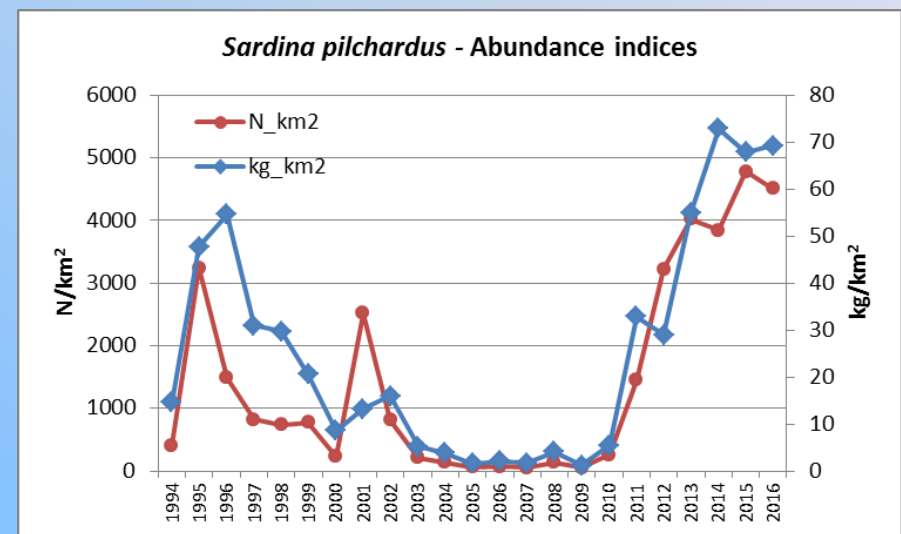
Biomass estimate from the echo-survey shows wide fluctuations of hundreds of thousands of tonnes



## Biomass and density indices of small pelagics from Medits Survey performed in the northern and central Adriatic Sea (GSA 17 – Italian side) from 1994 to 2016



**Anchovy**



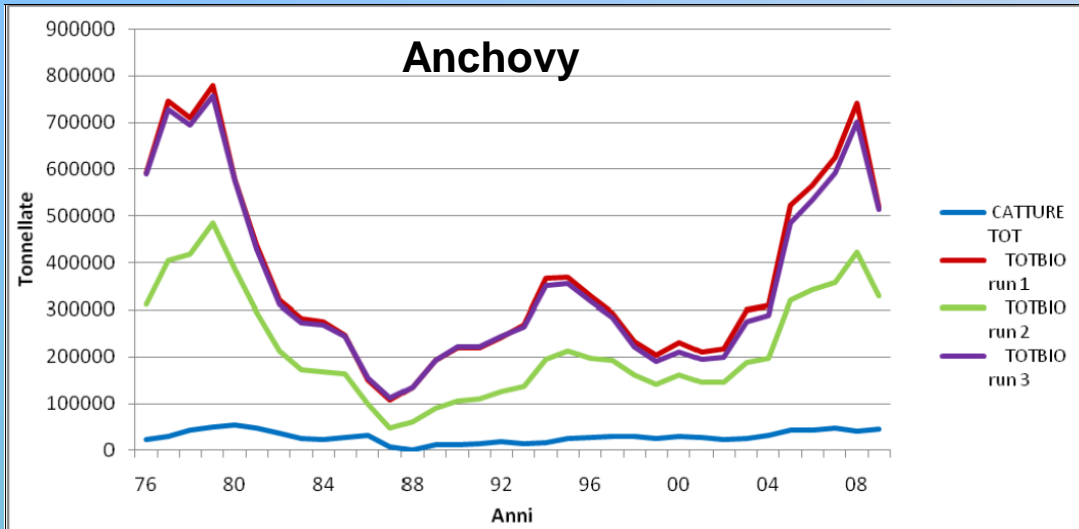
**Sardine**

Indices from Medits Survey confirm wide fluctuations of abundance, even greater than 100%

Both anchovy and sardine show very high values in the last five years

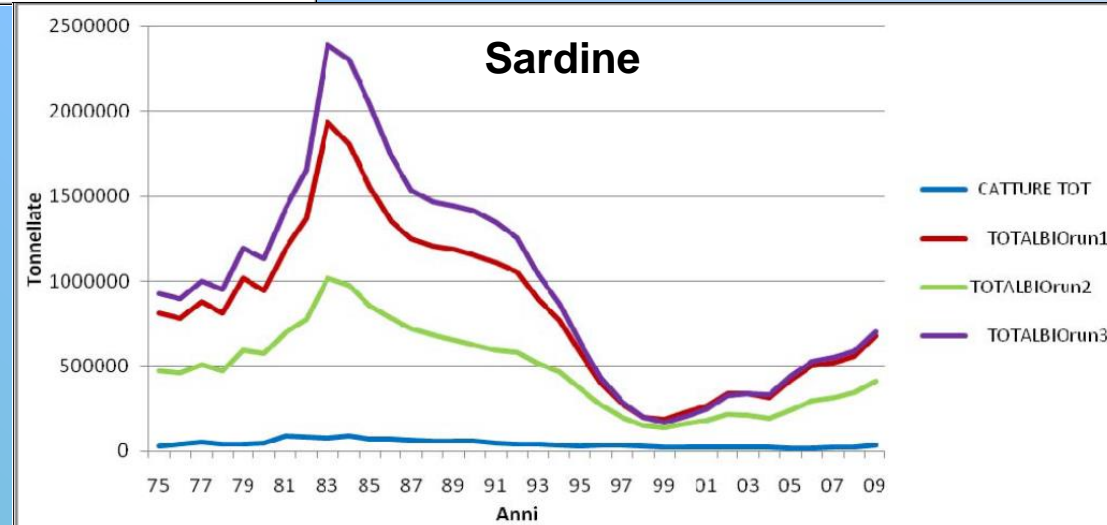


## Biomass of anchovy and sardine from 1976 to 2009 assessed by means of the VPA, using different natural mortality values (from Angelini, 2010)



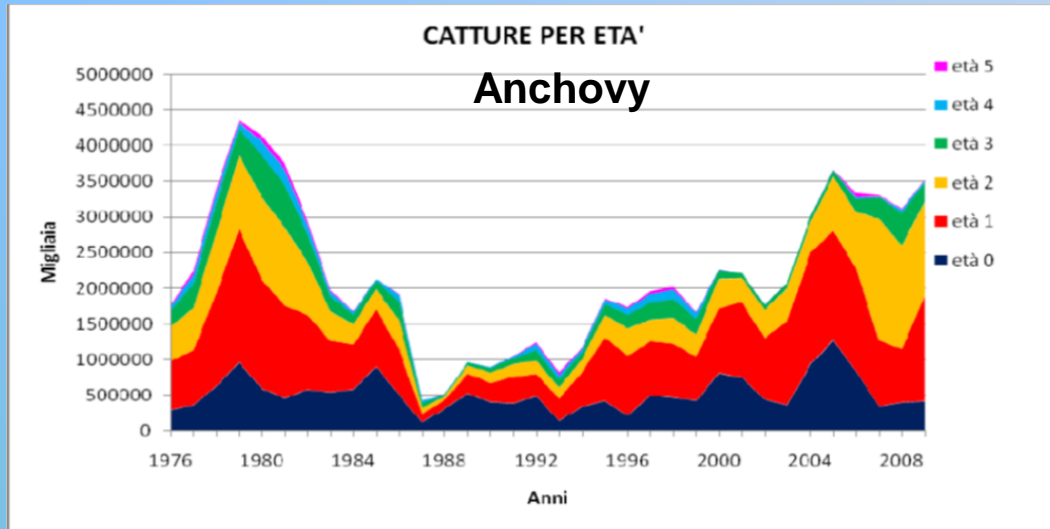
Biomass values fluctuate throughout the period and according to the value of Natural mortality used in the analyses.

The lowest Natural Mortality value was used in the run 2 (in green)





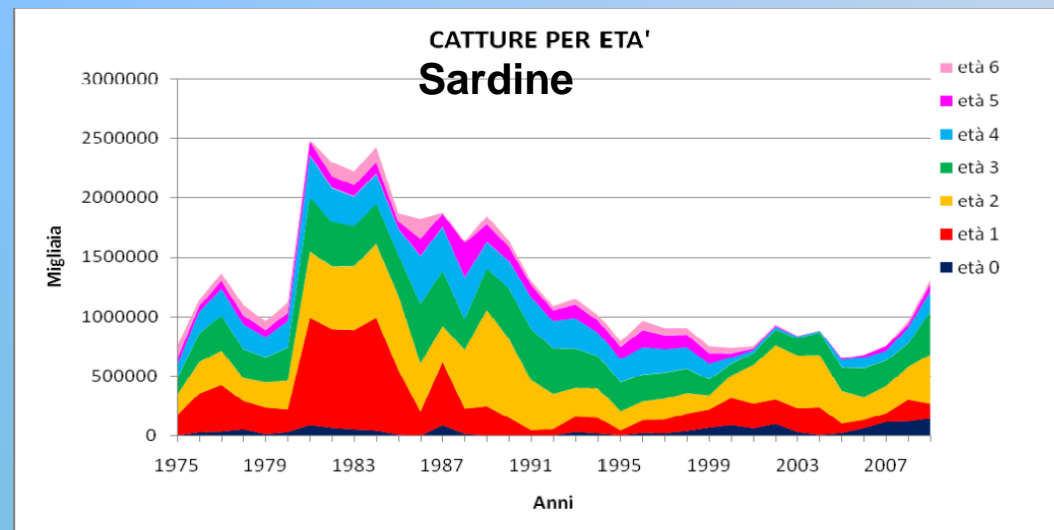
## Catch at age (From Angelini, 2010)



The weight of age-class 0 (pre-recruitment), age-class 1 and 2 in the population structure is evident for anchovy

The weight of age-class 1 and 2 in the population structure is evident for sardine

The weight of each age-class changes from year to year

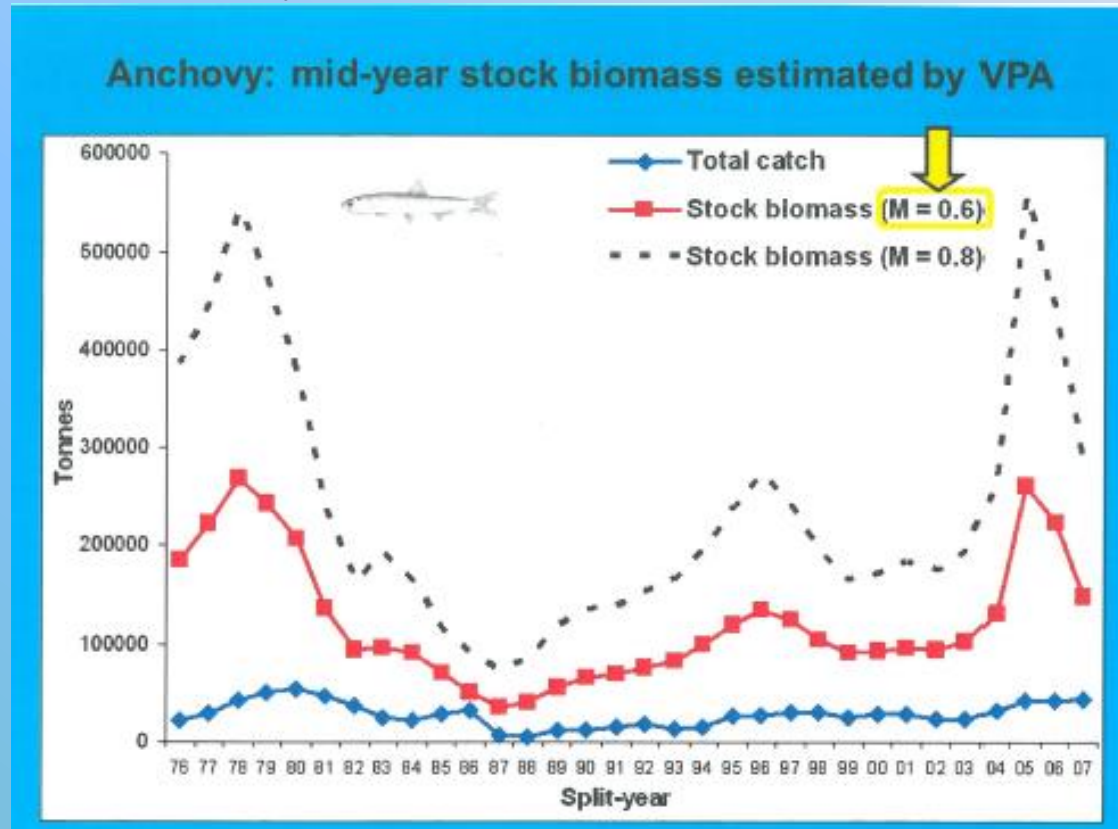






- Biomass estimates also point out the annual renewal rate, i.e. the biomass increasing (that depends on the recruitments of the new cohort and on the increase in weight of the survivors) and the biomass decreasing (that depends on the natural mortality and fishery)
- Wide fluctuations of biomass in the period highlight:
  - high variability of the recruitment
  - population structure with few age-classes
  - high annual renewal rate
  - biomass difference between years greater than the biomass caught

# Influence of Natural Mortality value (M) on the biomass assessment (from Santojanni et al., 2008)



- Natural Mortality M used in the analysis affects the biomass assessment
- With M=0.8 the estimated biomass value is twice the biomass value estimated using M=0.6 (in red)



- Natural Mortality cannot be measured due to the great number of factors that affect it
- In the early stages of life of each species (larval and juveniles) only Natural Mortality affect the number of individuals, reducing the number of survivors by more than 90%
- After the recruitment to fishery, also Fishing Mortality (F) affects the number of survivors
- The ratio between M and F changes according to species and age
- When low value of M is used in the analysis, the major cause of mortality is attributed to fishery



- The multiannual plan is not constructed on a scientific base, since to fix the quantity to be fished:
  - fishery data and age composition in the year  $x$  should be available
  - the analysis are performed in the following year  $x+1$  and, in the best case, the amount available for fishery will be established for the year  $x+2$
  - on the other hand, in the year  $x+2$ , more than 80% of the biomass living in the year  $x$ , was substituted by two new cohorts.
- For the purpose of the fisheries management, the whole process is useless



- The **EU Common Fishery Policy** aim to implementing a community system for conservation of marine biological resources and for the management of fisheries exploitation in order to guarantee **ecological, economic and social sustainability**.
- The multiannual plan only concerns the environmental sustainability. The other two aspects are totally ignored.
- As a matter of fact, according to Official Italian statistical data (Mipaaf-IREPA), in Italy in the last two decades:
  - the fishery production decreased by 54% (from about 400000 tons to about 190000 tons)
  - vessels number declined from about 19000 to about 12000 (-38%) and fishing days decreased more than 55%
  - Employment onboard decreased by 17000 fishermen
  - Overall the loss in revenues amounts to more than 1 billion € per year

**The multiannual plan for small pelagics stocks in the Adriatic Sea should be evaluated taking into account the results obtained to date**



## References

- Angelini S., 2010. Modelli e Gestione delle risorse alieutiche “Valutazione degli stock di Alici (*Engraulis encrasicolus*) e Sardine (*Sardina pilchardus*) con metodi di dinamica di Popolazione”. Degree Thesis - Università di Bologna, A.A. 2009-2010.
- Santojanni A. et al., 2008. “Anchovy and Sardine stock assessment in the GSA 17: 1975-2007”. GFCM-SAC, SubCommittee on Stock Assessment, Izmir, 22-26/09/2008.