Is the French Mediterranean European pilchard crisis related to their diet?

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During the last decade there has been a decrease in landings, biomass and body condition of planktivorous fish in the north-western Mediterranean Sea. This induced major fisheries crisis related to commercial European pilchard (*Sardina pilchardus*). A merging hypothesis is that this may be related to changes in their diet (Le Bourg et al., 2015). Moreover, these planktivorous species play a key role in the food web channeling the organic matter from plankton to higher predators also targeted by fisheries.

The aim of our research was to study the temporal variability of the European pilchard's diet in term of species composition, size and energetic quality (proteins, carbohydrates, lipids) related to plankton composition.

The analyzed individuals were collected in the Bay of Marseille by local fishermen from October 2016 to July 2017. The stomach contents were compared to the plankton collected by 80 μm mesh size nets. Main prey were copepods: *Clauso/Paracalanus* spp., *Microsetella* spp., Corycaeidae and Oncaeidae. Our results showed a particularly selective feeding behavior for the European pilchard mainly for the most energetic **plankton groups** (and **sizes**) with **the highest** percentages of proteins.

However, European pilchard continues to consume small prey and their condition remains low compared to recent studies (Le Bourg et al., 2015). Why is European pilchard consuming small prey? Are large size copepods that they used to eat actually missing from the plankton community? Does this diet change have to do with the monthly variations of environmental parameters?

This preliminary work will be continued over time and completed by the study of other species of planktivorous fish, as well as by the analysis of stable isotopes. This will lead to hypotheses about the role of fluctuations in plankton composition and abundance as well as its nutritional quality on diet and body condition of planktivorous fish.

Reference

Le Bourg, B., Bănaru, D., Saraux, C., Nowaczyk, A., Le Luherne, E., Jadaud, A., Bigot, J.L., and Richard, P. (2015) Trophic niche overlap of sprat and commercial small pelagic teleosts in the Gulf of Lions (NW Mediterranean Sea). *J. Sea Res.*, **103**, 138–146.

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