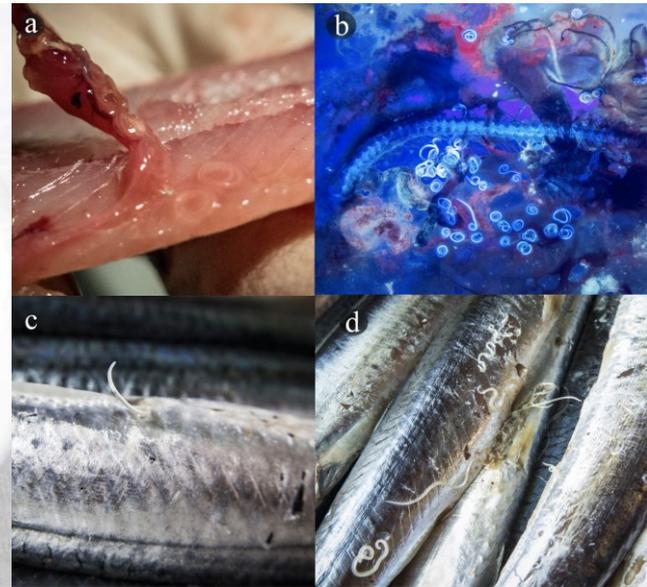


The risk associated to not proper stored anchovies fished in a heavily infected area of the Mediterranean Sea



Anisakis pegreffii in *Encraulis encrasicolus*



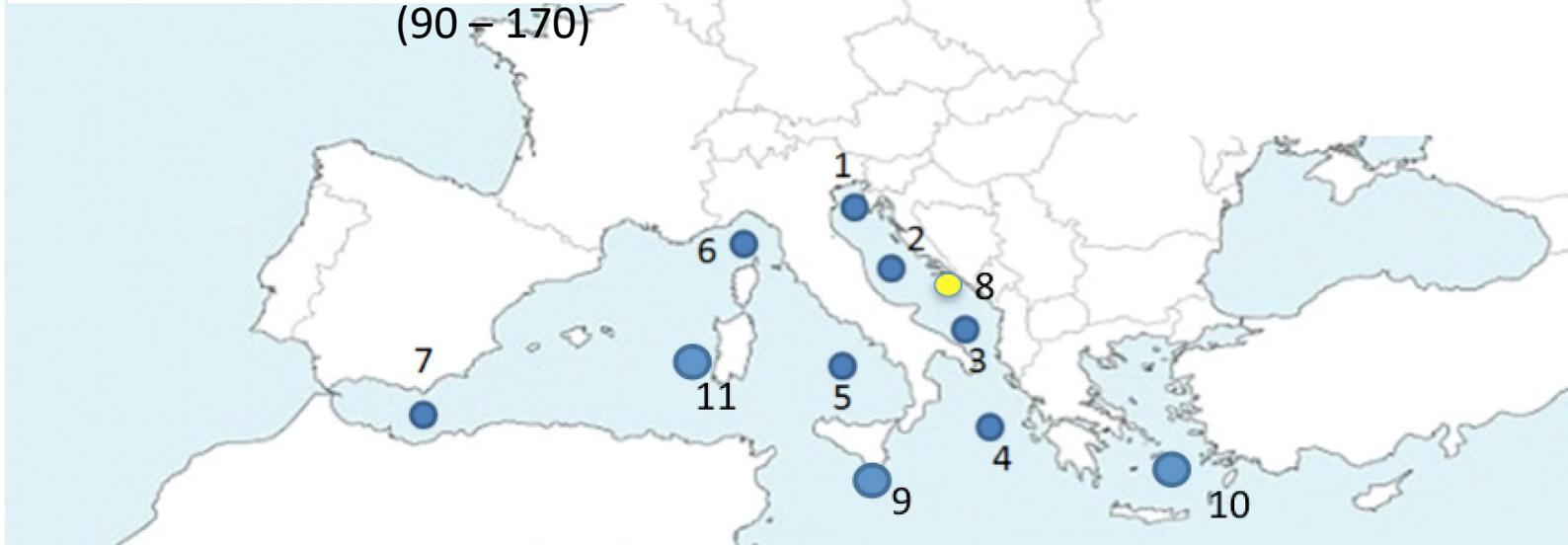


3450 fish, collected during 2 years
(2013-2015)



Mean length 138.22 ± 16.00
cm
(90 – 170)

1. North Adriatic Sea
2. Central Adriatic Sea
3. South Adriatic Sea
4. Ionian Sea
5. Tyrrhenian Sea
6. Ligurian Sea
7. Alboran Sea
8. IZOR (Split)
9. Southern Sicily
10. Aegean Sea
11. West Sardinia



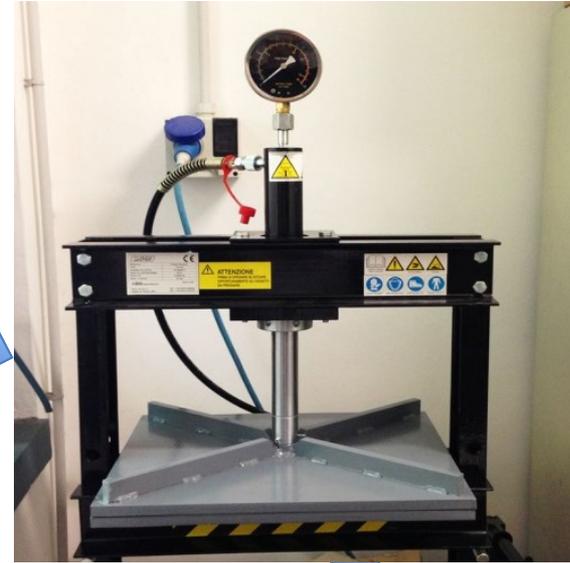
The research leading to these results has received funding from the European Union's under grant agreement n°312068, **PARASITE**.

UV-compression method (Karl & Leinemann, 1993)

Preparation of fillets from fresh fish



Pressing



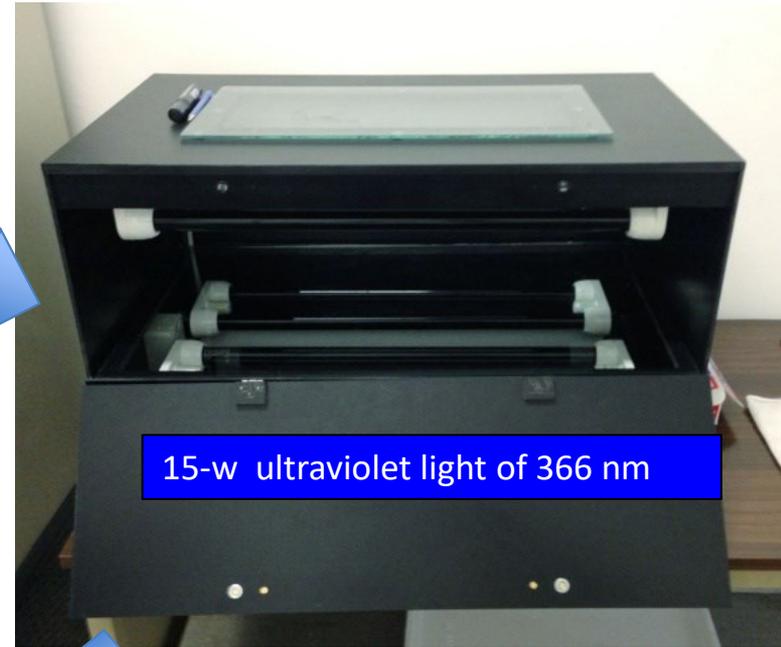
Pressed fillets are frozen in plastic bags



The pressed sample (in the plastic bag) is examined for nematodes under UV-light at 366 nm in a viewing box.

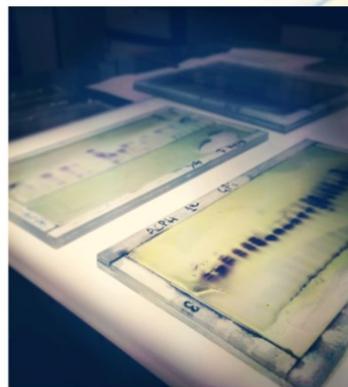
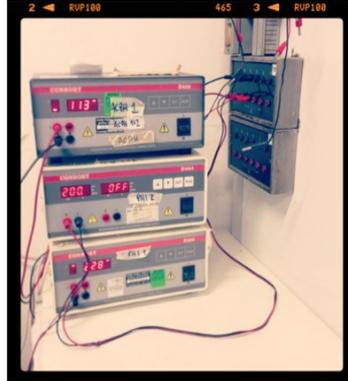


All nematodes show a brilliant white-bluish fluorescence and can be counted easily.

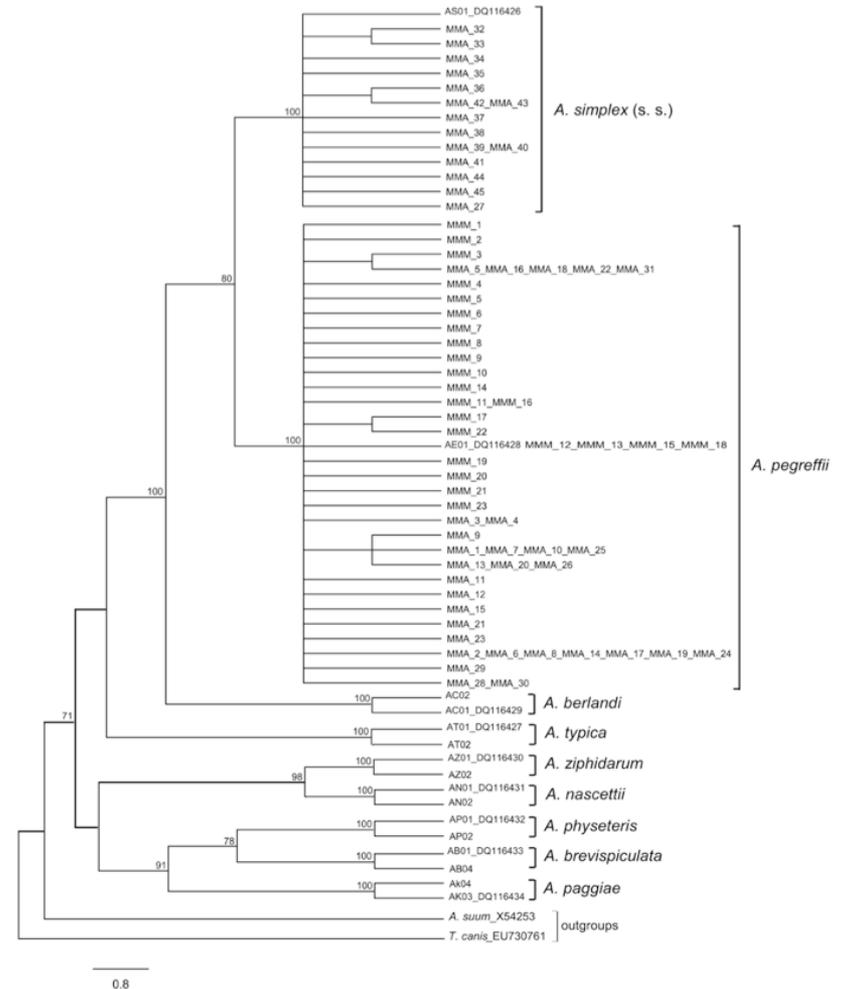


Larvae identification: multilocus approach

Multilocus allozyme electrophoresis procedure



Maximum Parsimony (MP) bootstrap consensus tree inferred by PAUP*4.0 sequenced at mtDNA *cox2*

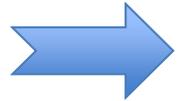




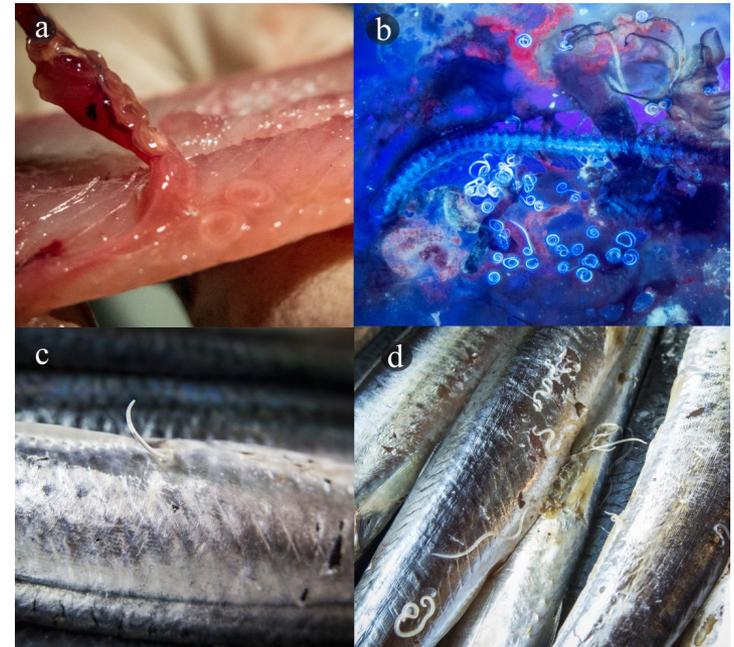
Area with higher infection rates recorded
in anchovies sampled during 2013 – 2014
Off Central Adriatic coasts – (42° 58' N – 14° 12' E)

Prevalence (%) = **92.3**

Abundance = **7.02 ± 7.06** (0 – 45)



Perfect sampling
area for some
experiments !



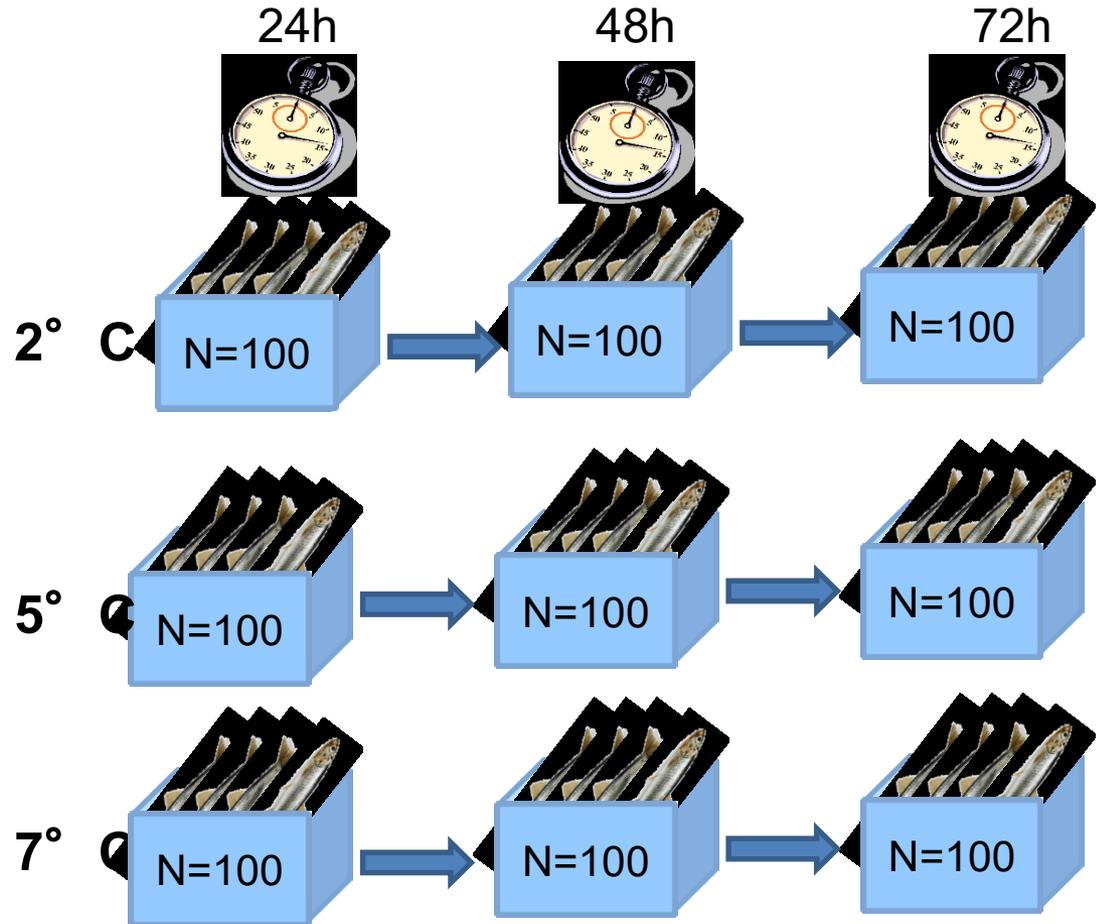
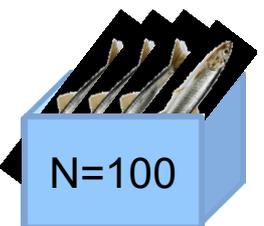
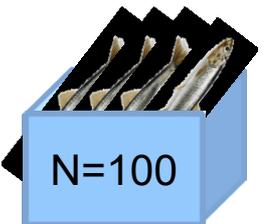
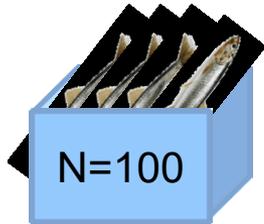


1200 fish from
the same area
(October 2014)

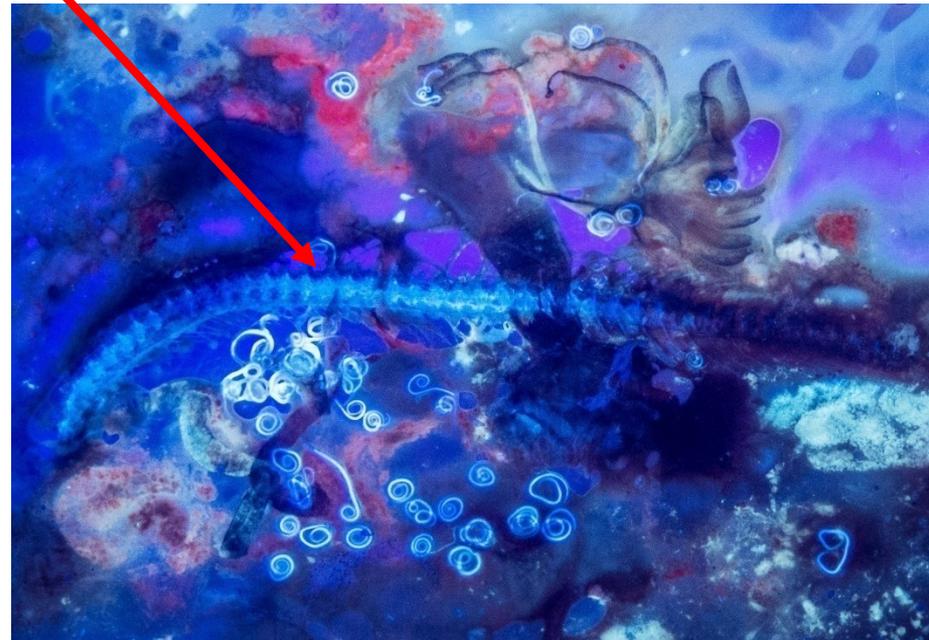
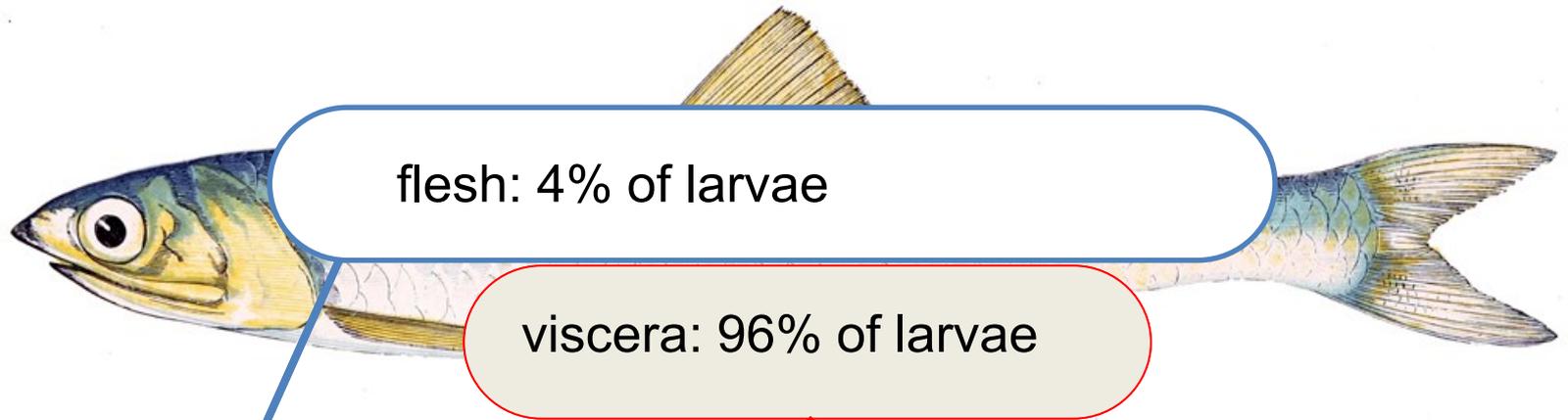


divided in **12**
batches of **100**
specimens each

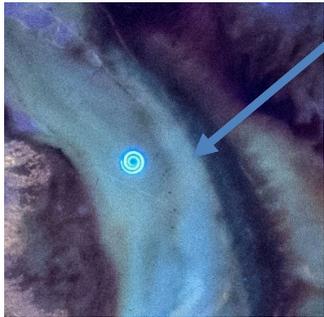
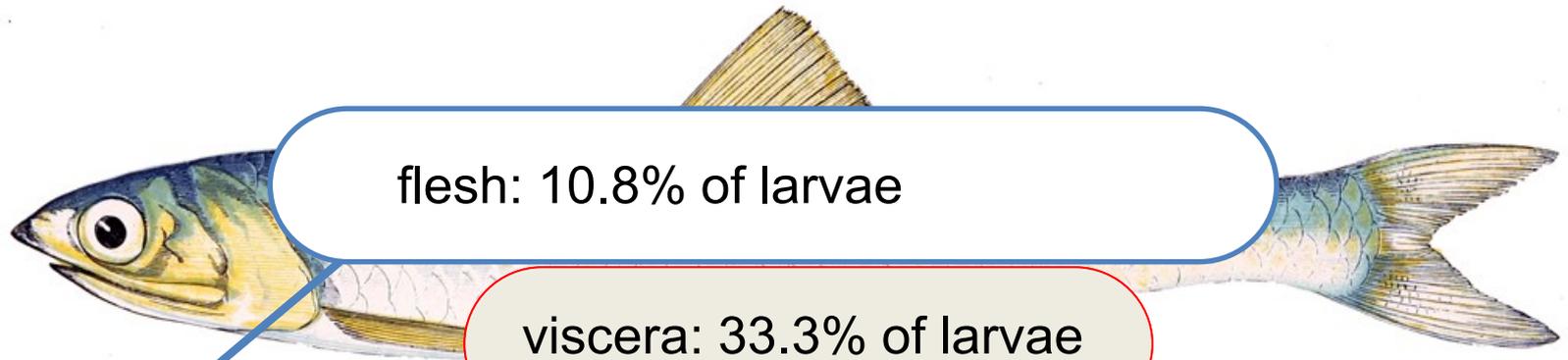
Immediately frozen:
“control samples”

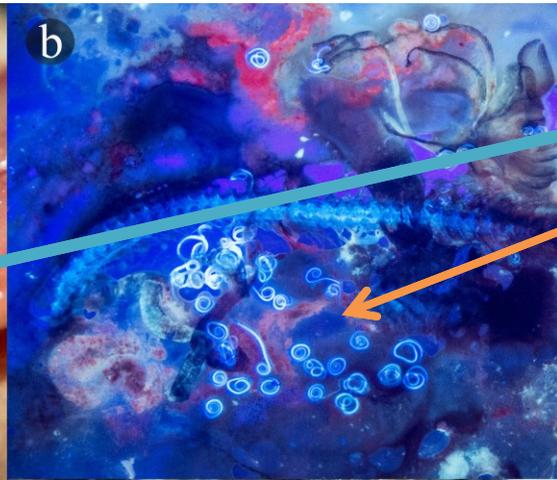
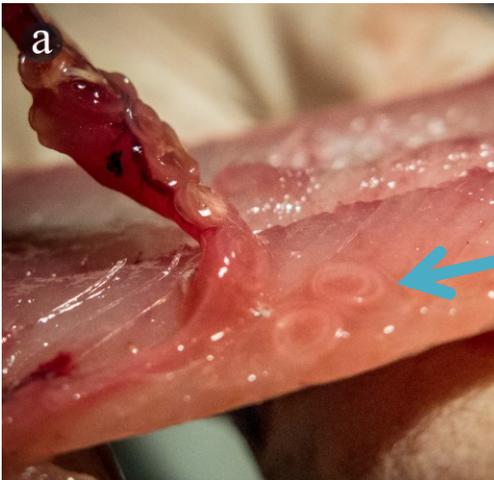


Fish frozen immediately at landing,
→ “*intra-vitam*” migration of *A. pegreffii*



Fish stored for **48h** at **5° C**:
→ “***post-mortem***” migration of *A. pegreffii*





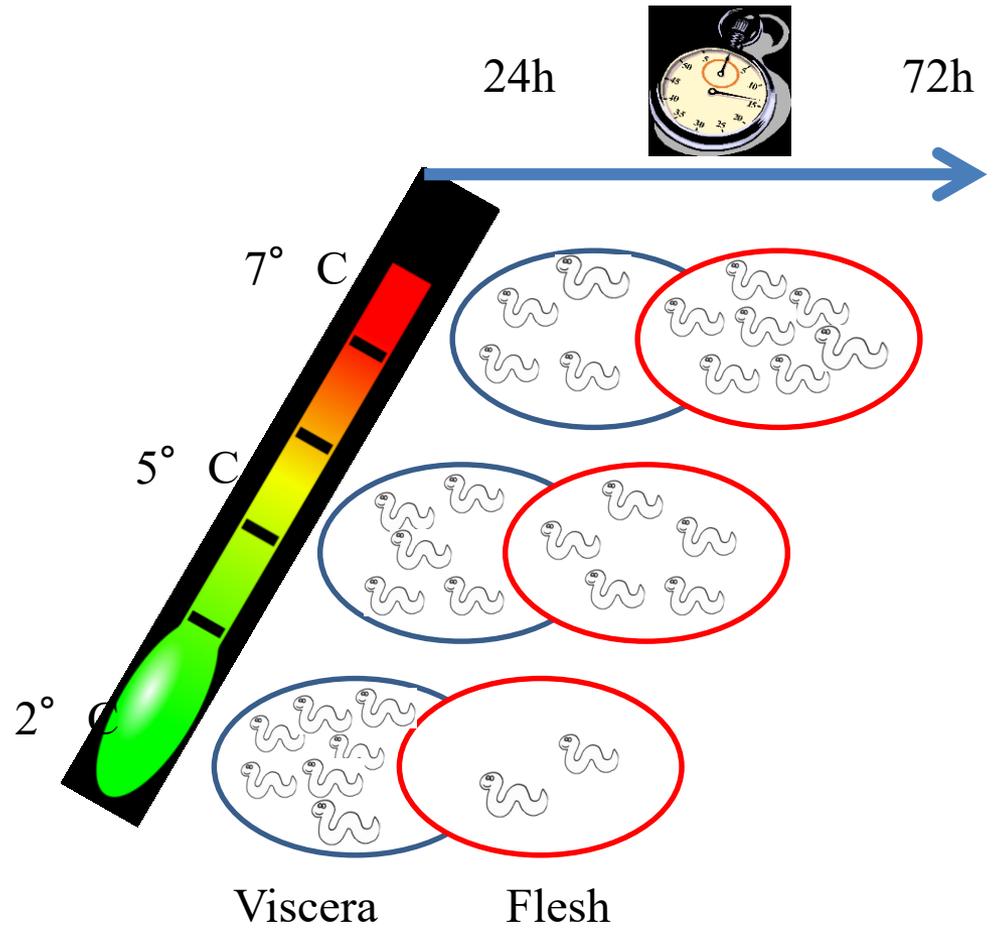
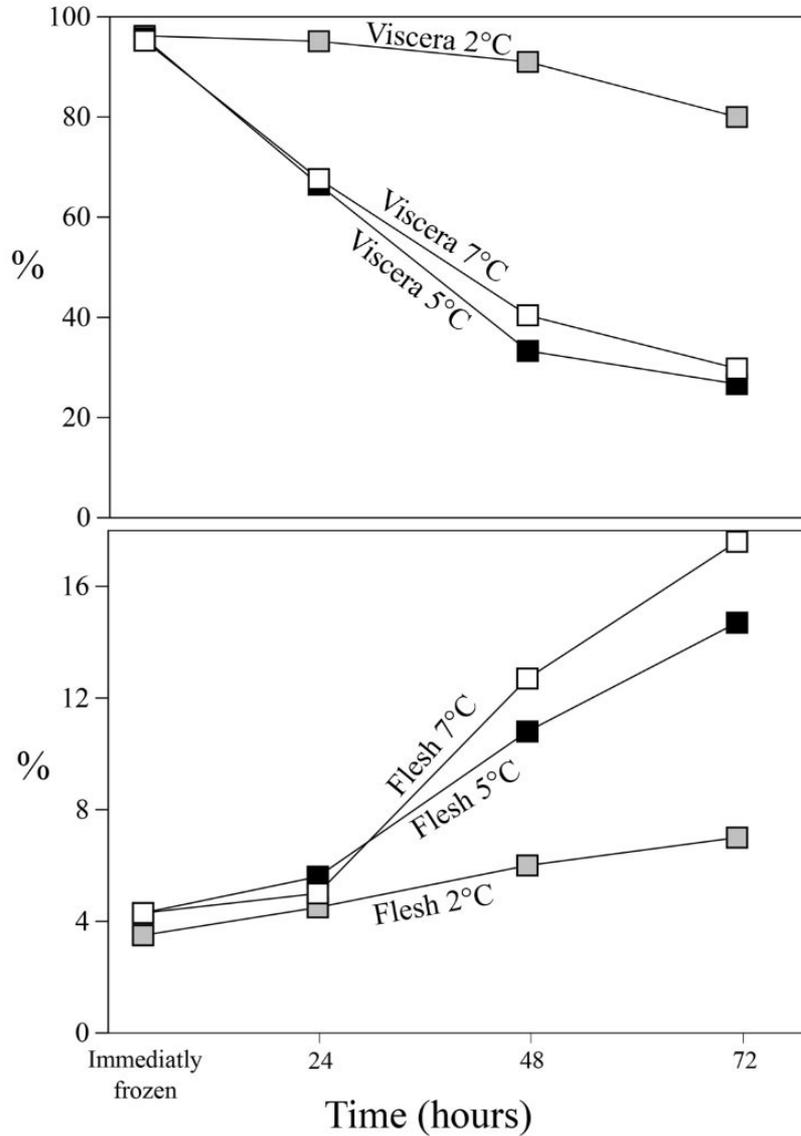
In fish frozen immediately after capture, larvae were all coiled.

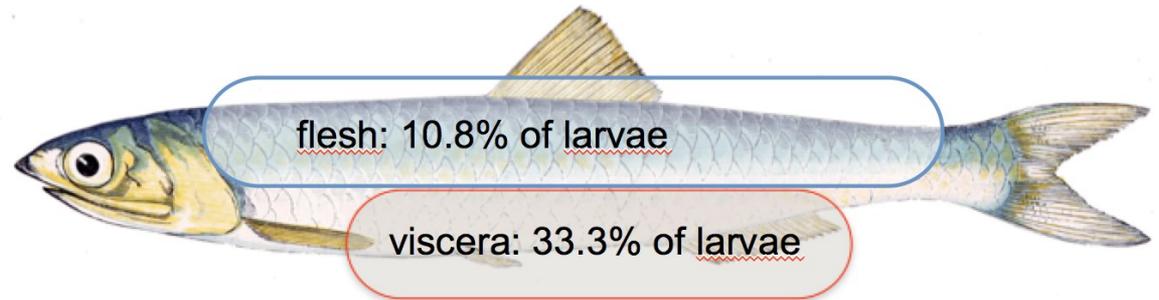
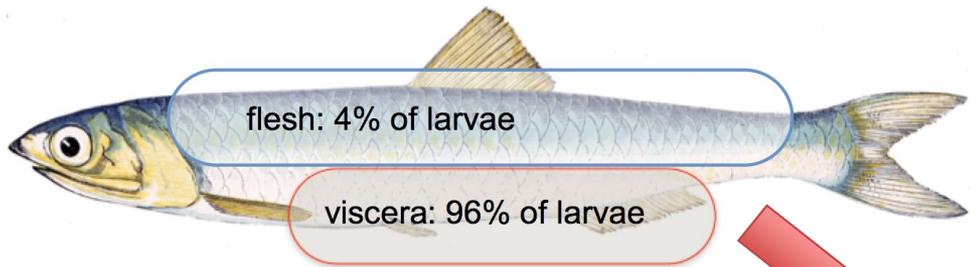


With an increase in temperature (from 2° to 7°) larvae were “vital” and increased their motility

**Larvae were coming out from the fish!!
(I personally observed this phenomenon also in a italian fishmarket!!!)**

Post-mortem motility of *A. pegreffii* in *E. encrasicolus*





In a NOT-PROPERLY stored fish,
the zoonotic risk associated to
consumption of raw fish flesh more
than **DOUBLED** in 24-48h!!!



Maintaining this Anisakis/inactivating temperature during fish storage is the key to preserve a better quality of the seafood product.

Badly stored fish (>2°C):

- Increased zoonotic risk
- Low aesthetic appeal

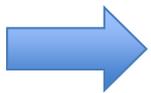


UNMARKETABLE PRODUCT!



Also the seafood aesthetic aspect may be lowered!

Late evisceration of fish, and a not-proper storage of the fish batches, may cause the movement of MORE larvae in the edible elaborated product.



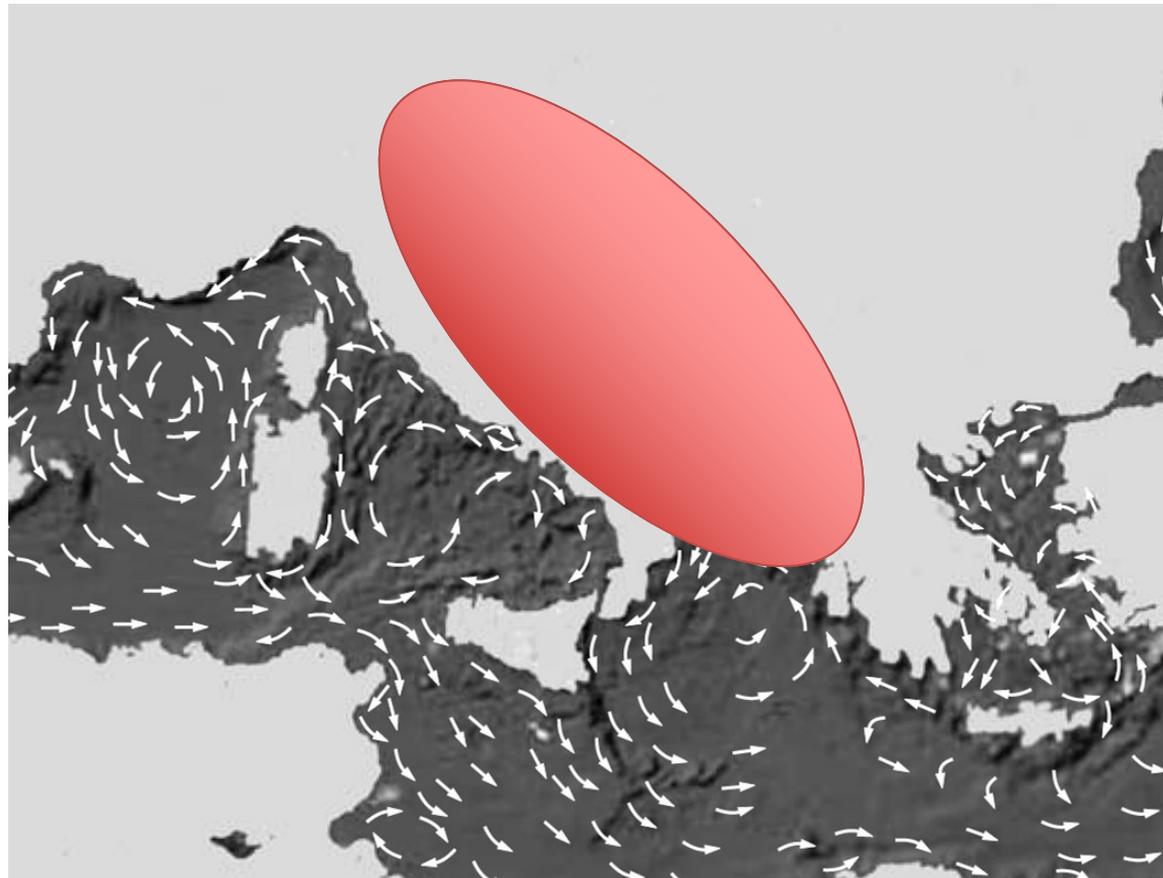
Maintaining this Anisakis/inactivating temperature during fish storage is the key to preserve a better quality of the seafood product.

A close-up photograph of a snake's head, showing its scales and a small opening. A speech bubble is overlaid on the image, containing text. The snake's head is the central focus, with its scales appearing textured and somewhat dark. The background is dark and out of focus.

It's freacking HOT here,
I'd rather crawl outside!
Ciao!

Adriatic Sea

Distinctiveness of populations inhabiting this semiclosed sea suggests that the **Adriatic Sea** might represent a **region of further phylogeographical discontinuity** (Patarnello et al., 2007)



Anthropic shortcut in *Anisakis* life-cycle?

Anthropic impact!!!
Fish viscera associated with massive larvae, discharged at sea

