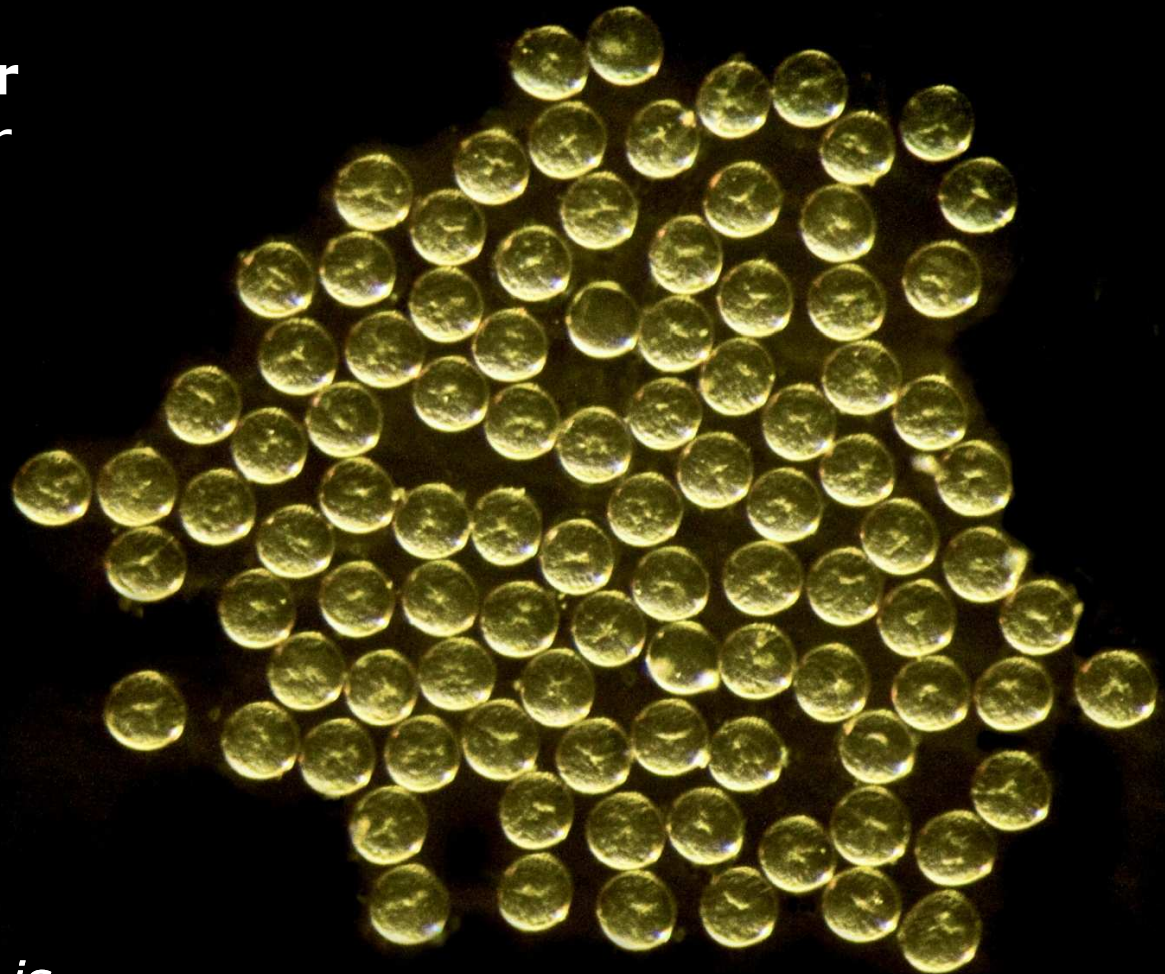


The story of fecundity of *Calanus finmarcicus* and *Temora longicornis* in Breiðafjörður

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Objectives

- Characterize the two key species of zooplankton in Breiðafjörður, in relation to seasonal variation in
 - Abundance and developmental stages
 - Gut content
 - Egg production
 - Carbon requirements



Zooplankton in Iceland

- Zooplankton community composition and dynamics differs between southern and northern waters
- Zooplankton abundance has been measured around Iceland since 1961
- *Calanus finmarchicus* dominates zooplankton communities offshore, while *C. finmarchicus*, *Pseudocalanus spp.* and *Temora longicornis* dominate coastal communities
- In Icelandic fjords limited number of zooplankton studies have been conducted
- Little is known about *T. longicornis* around Iceland

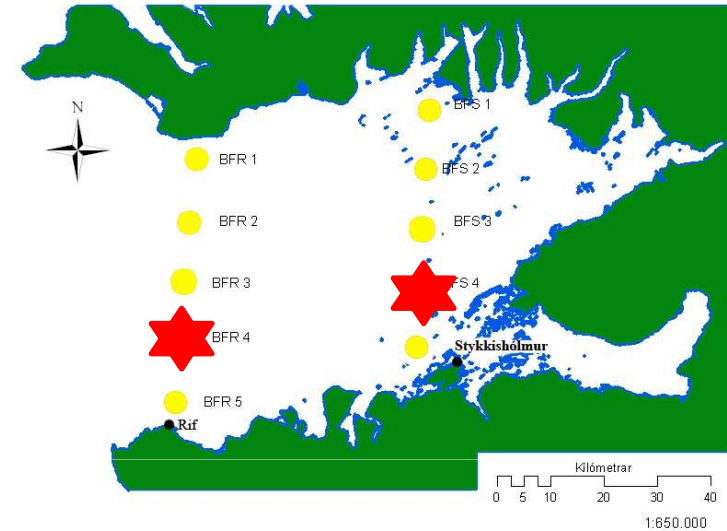
Sources: Ó. Ástþórsson et al. 1983, Ó. Ástþórsson and Á. Gíslason 1992, Á. Gíslason and Ó. Ástþórsson 1995 and 1998, Á. Gíslason et al. 2000.



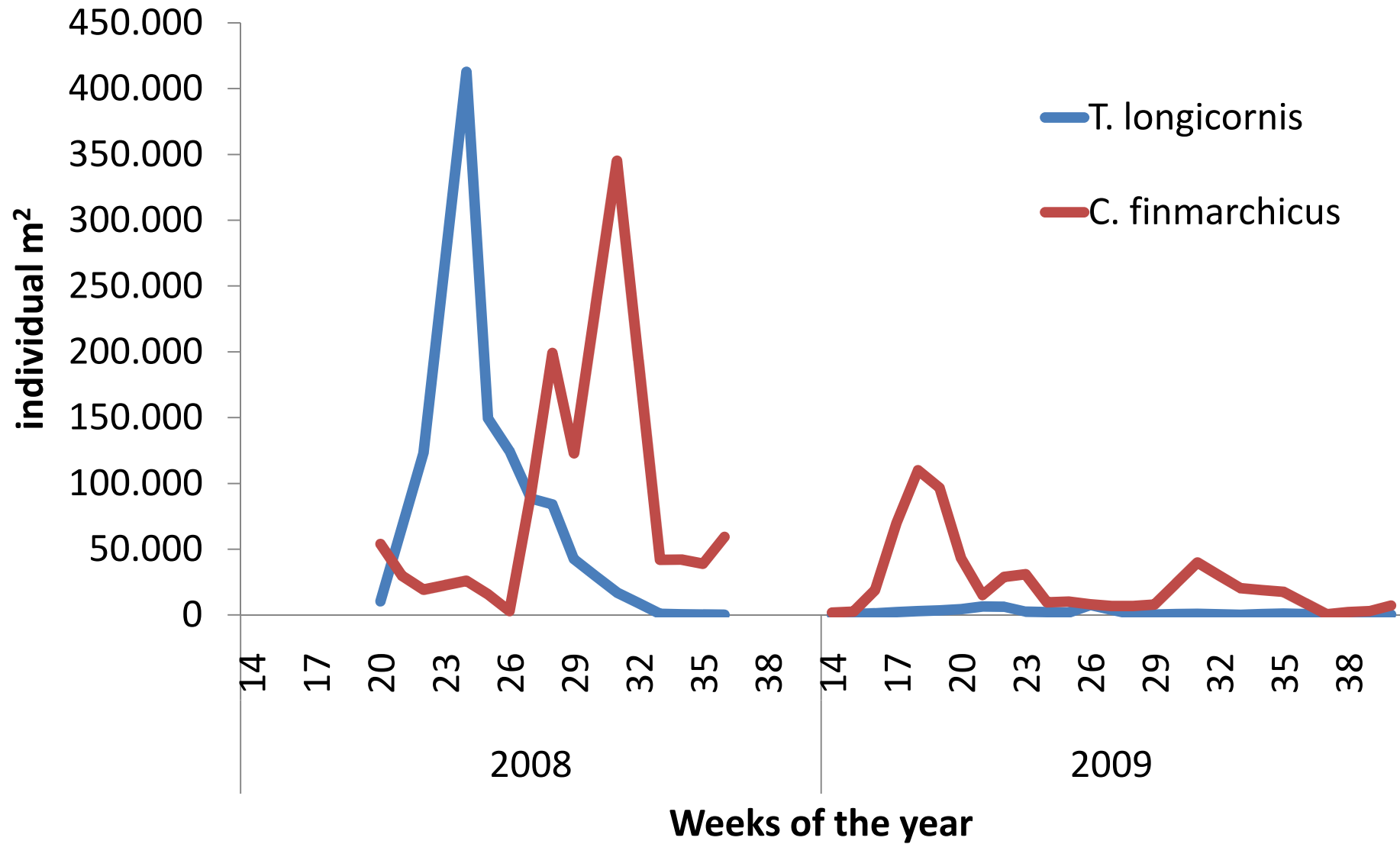
Sampling methods

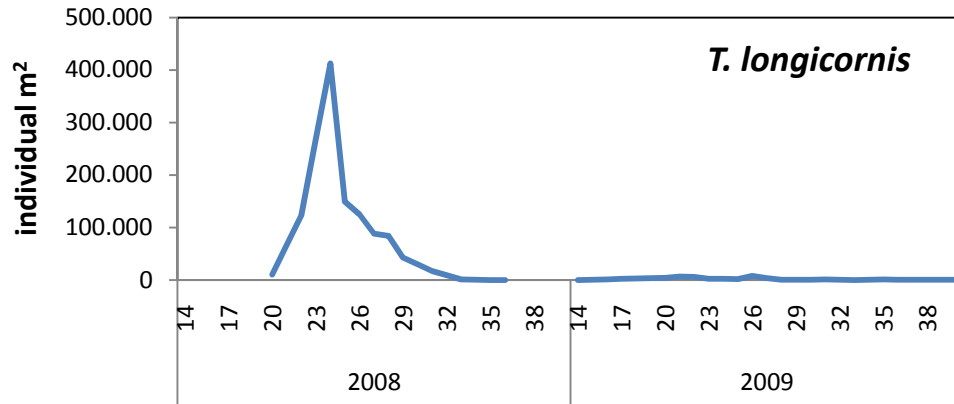


- Sampling
 - Breiðafjörður
 - Summer of 2008 and 2009
 - every 10th day
 - 2 locations
 - WP2-net and 200 μm mesh size
 - 50 m to surface
- Zooplankton was collected for
 - enumeration
 - egg production
 - gut fluorescence

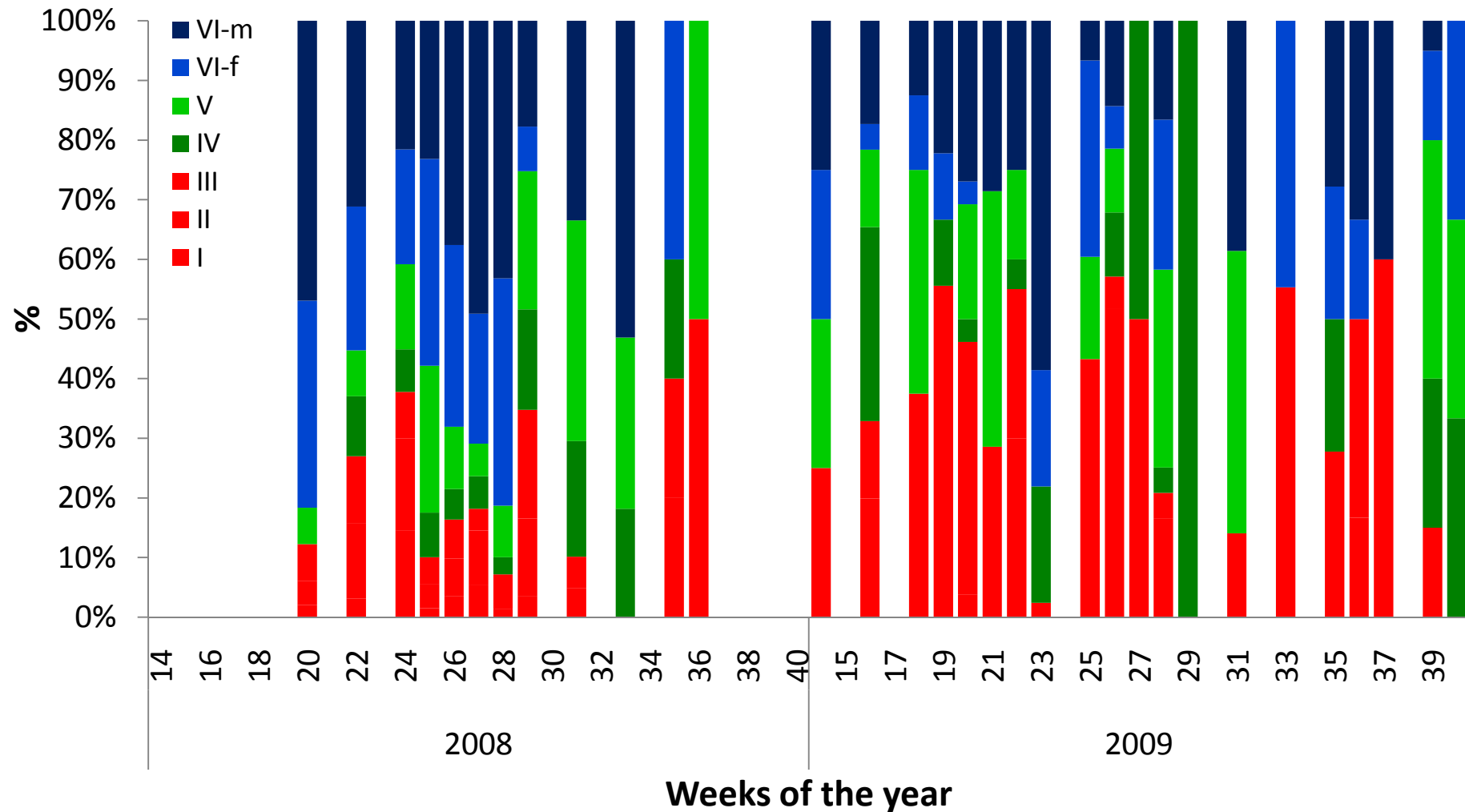


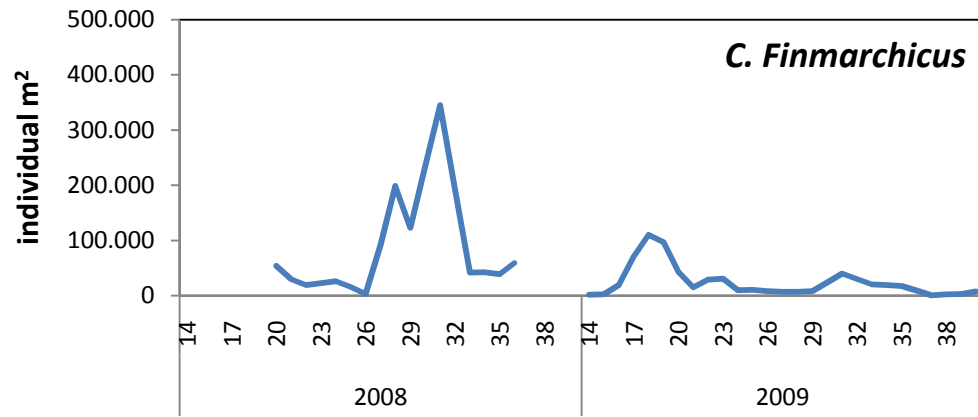
Abundance



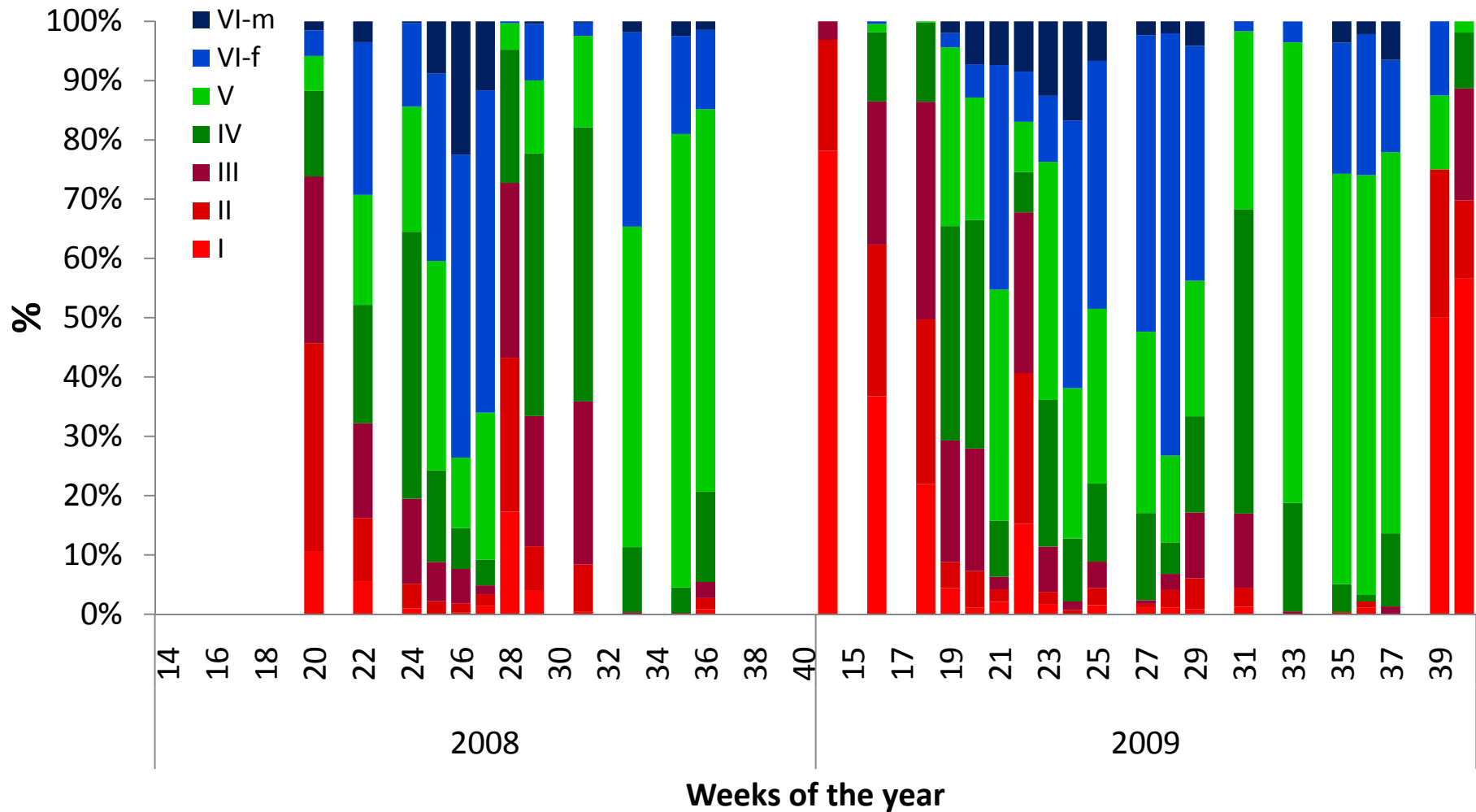


Developmental stages of *T. longicornis*

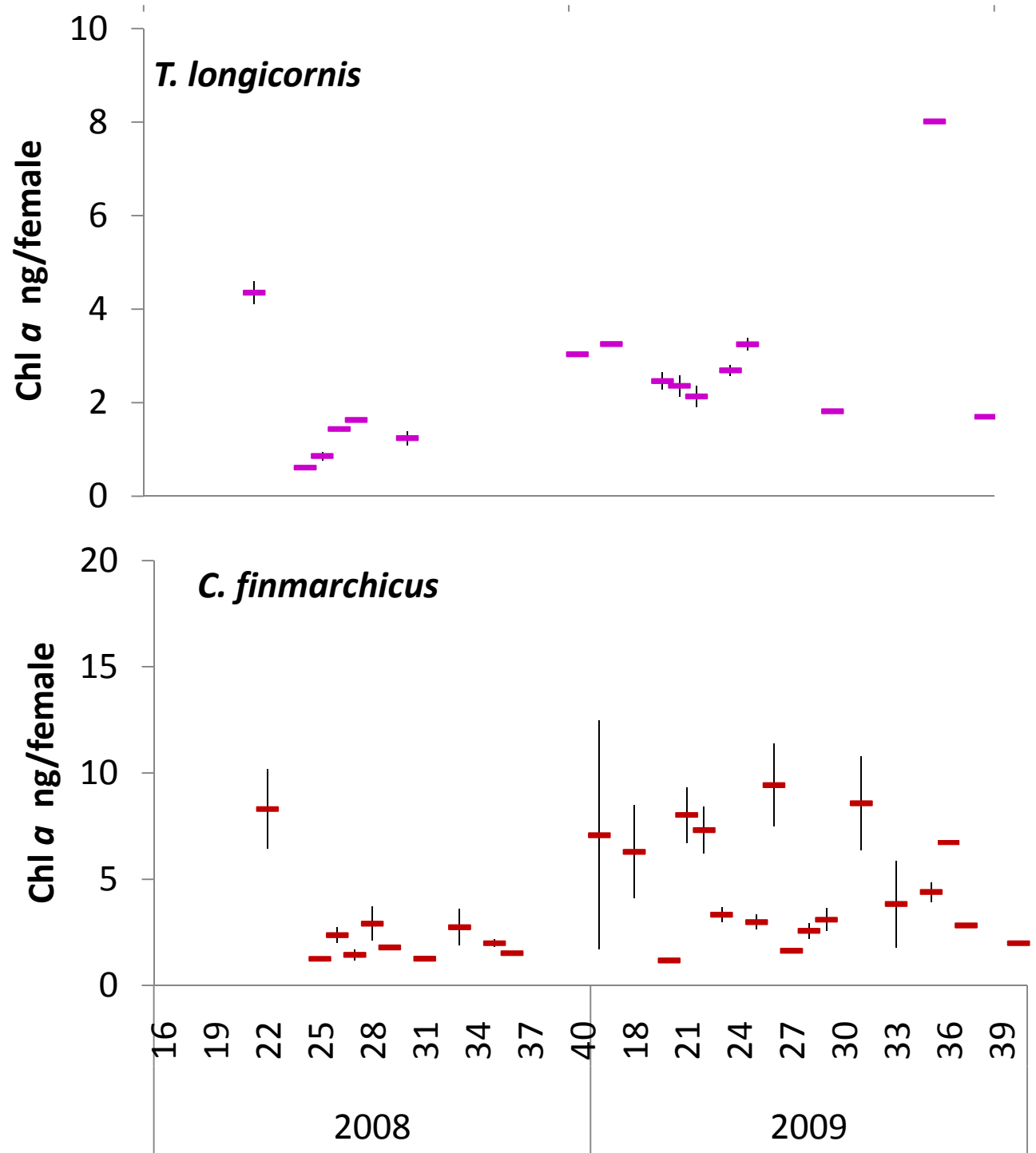




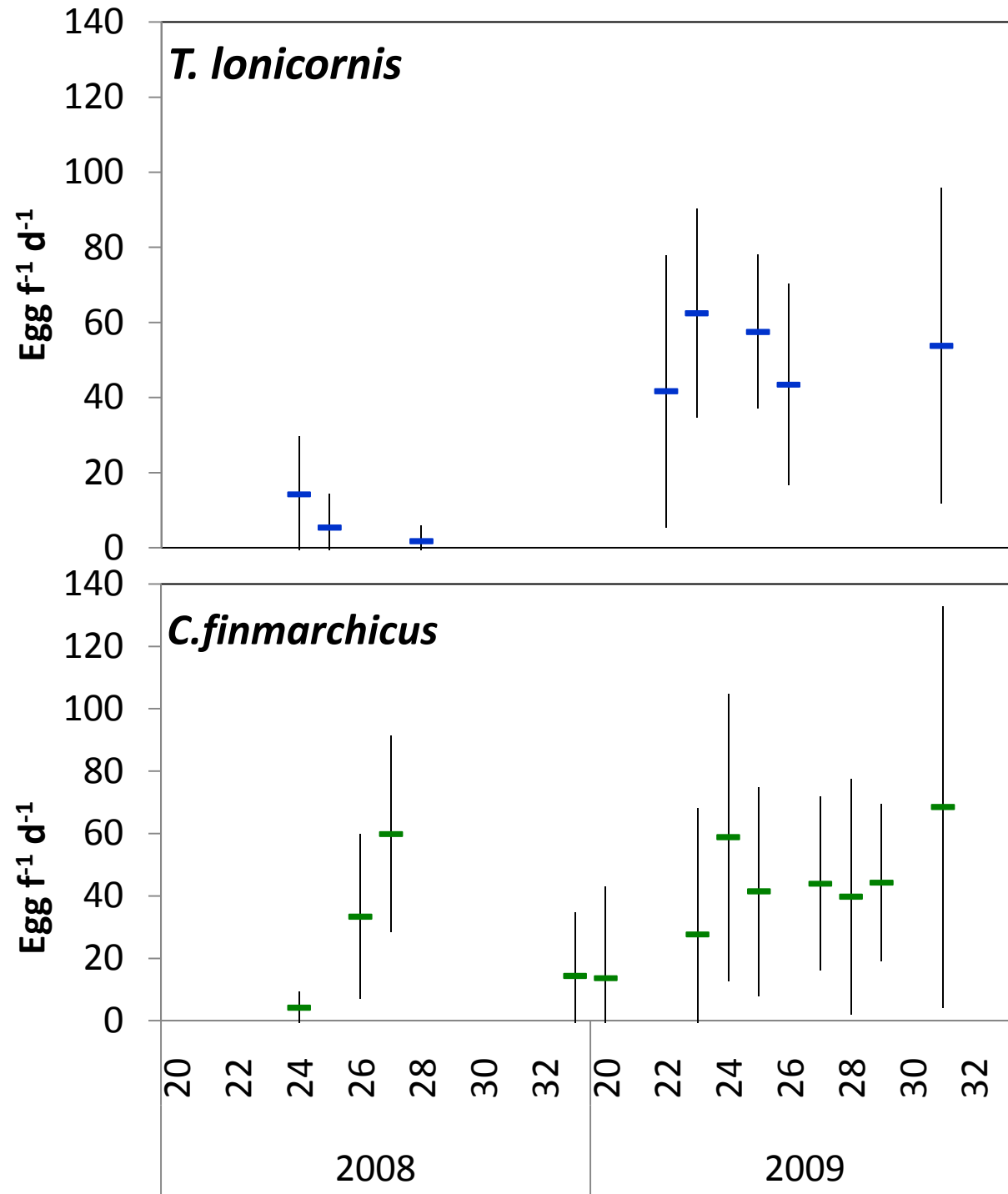
Developmental stages of *C. finmarchicus*



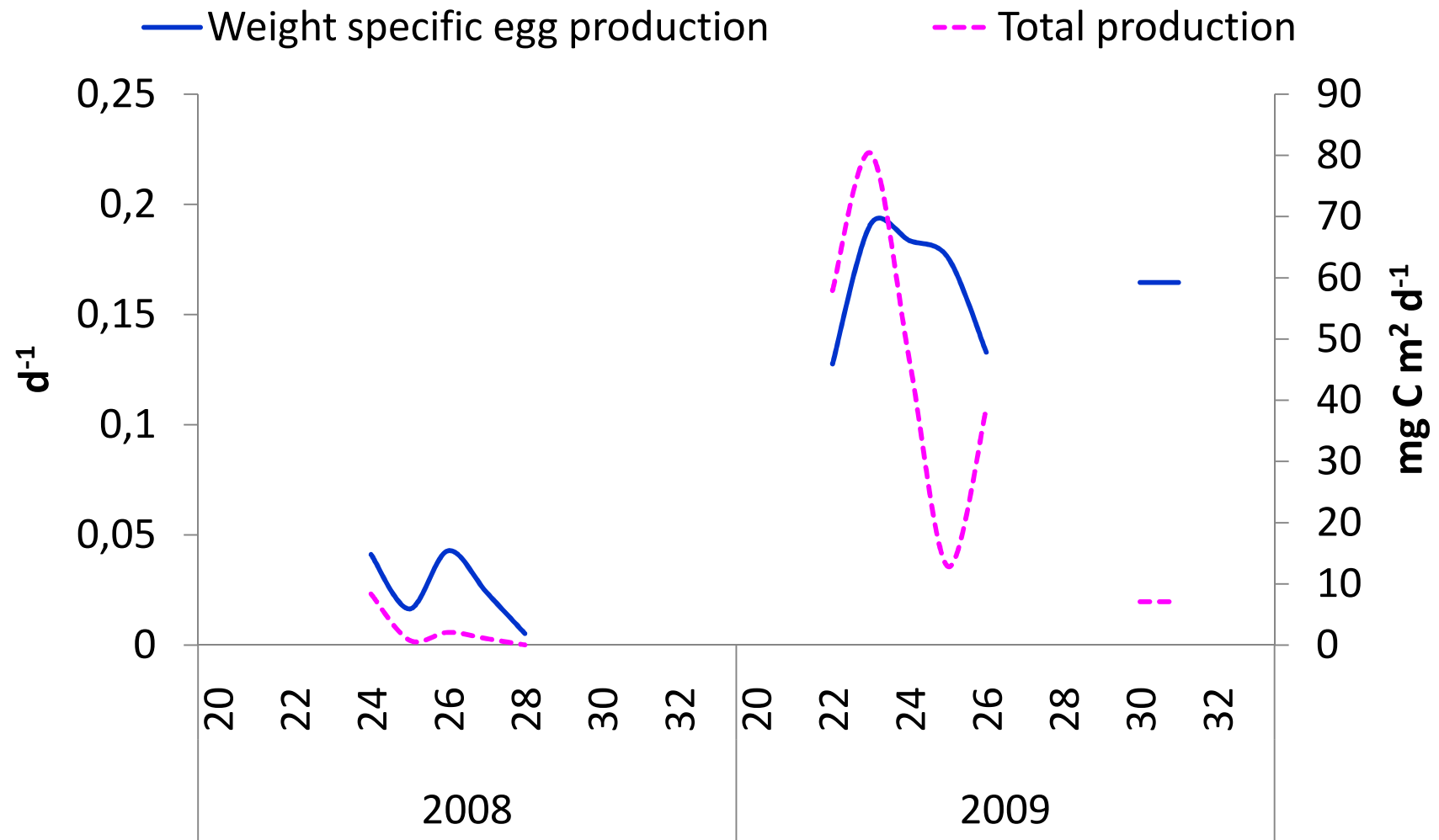
Gut content



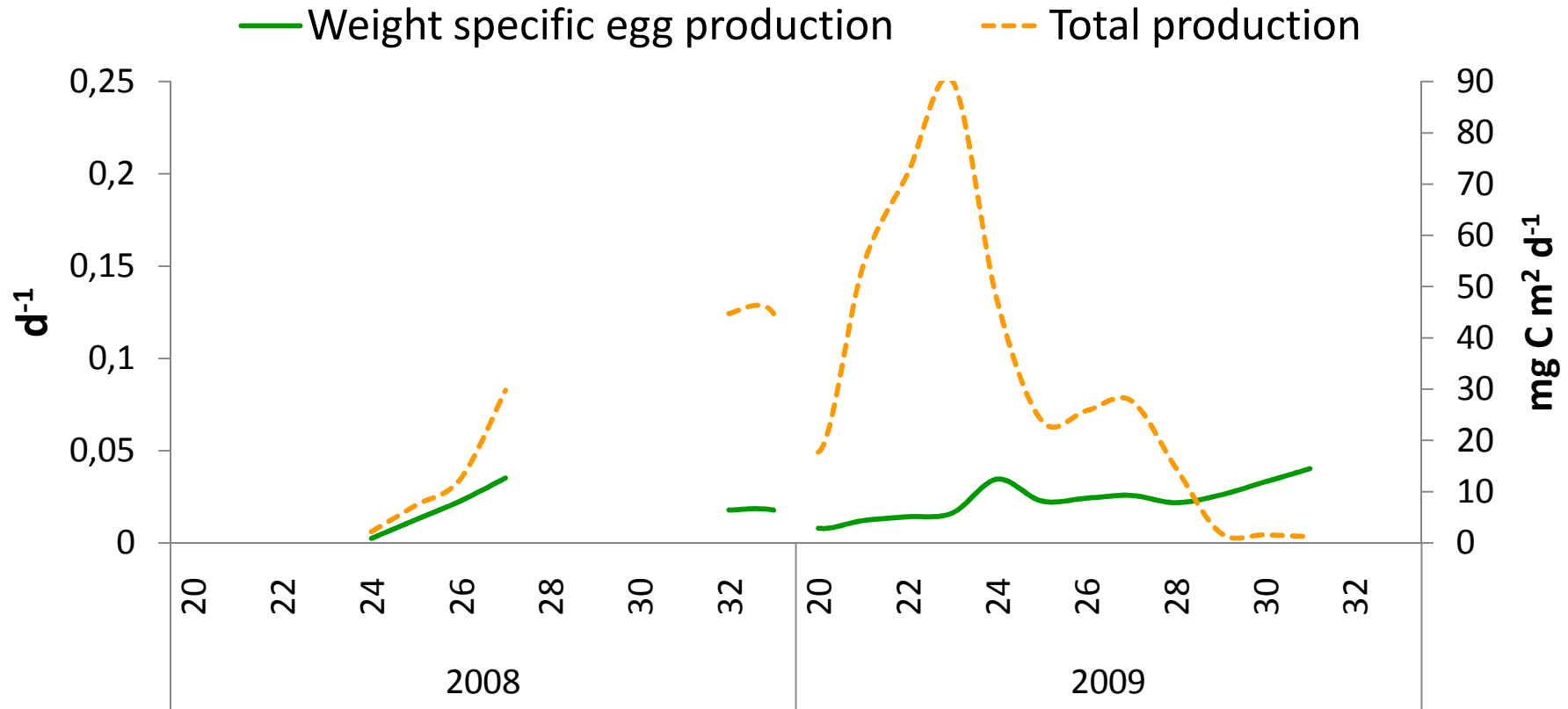
Egg production



Carbon requirements for *Temora*



Carbon requirements for *Calanus*

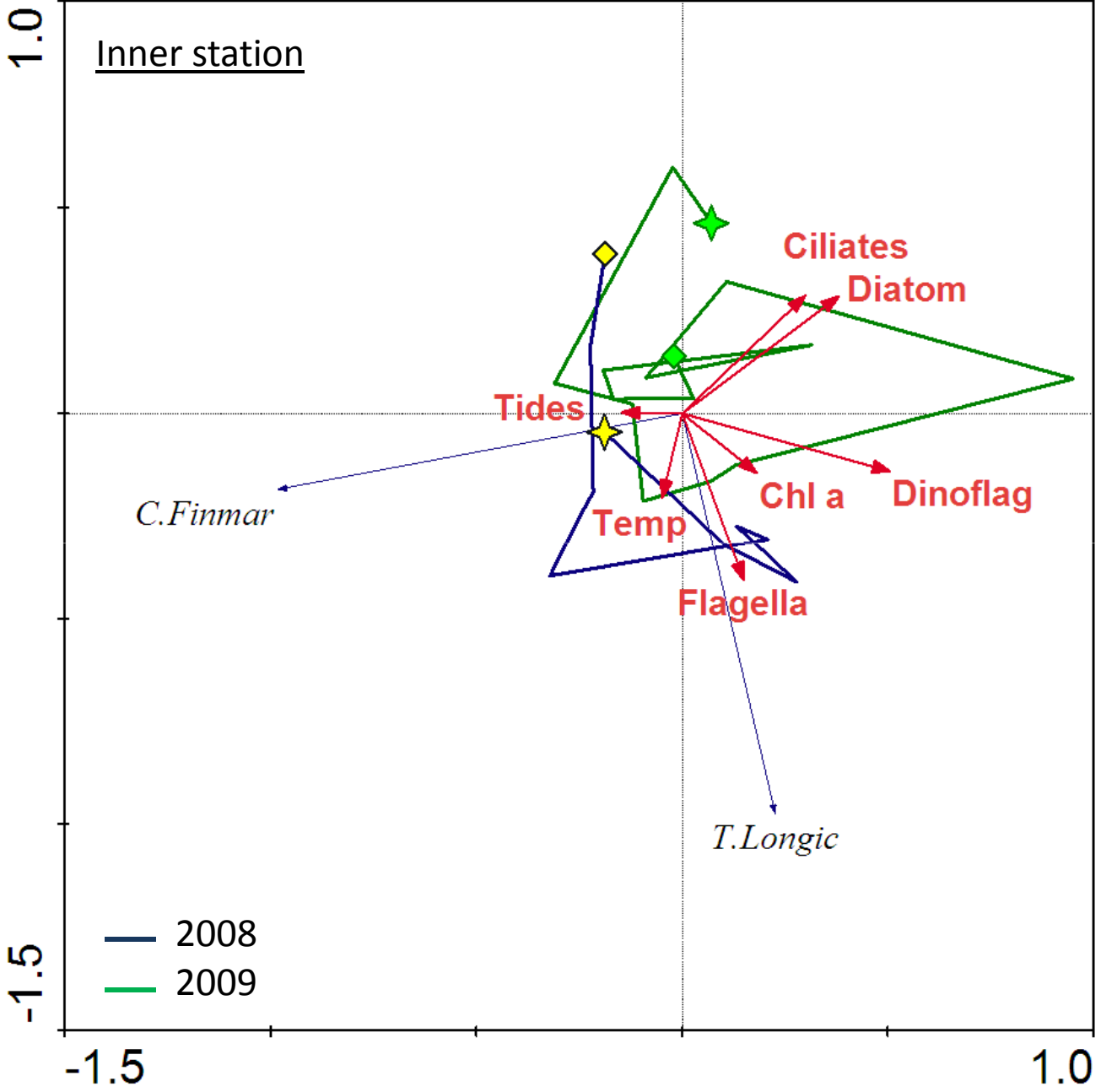


Week 23 in 2009

90 $mg\ C\ /m^2/d$ → 5.294 cells/liter

Phytoplankton → 373.000 cells/liter

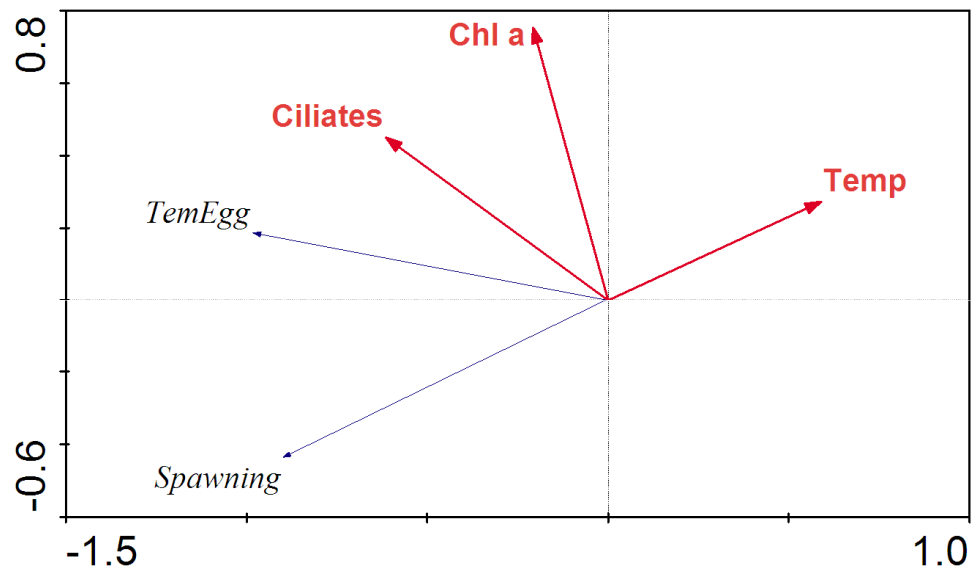
Progression



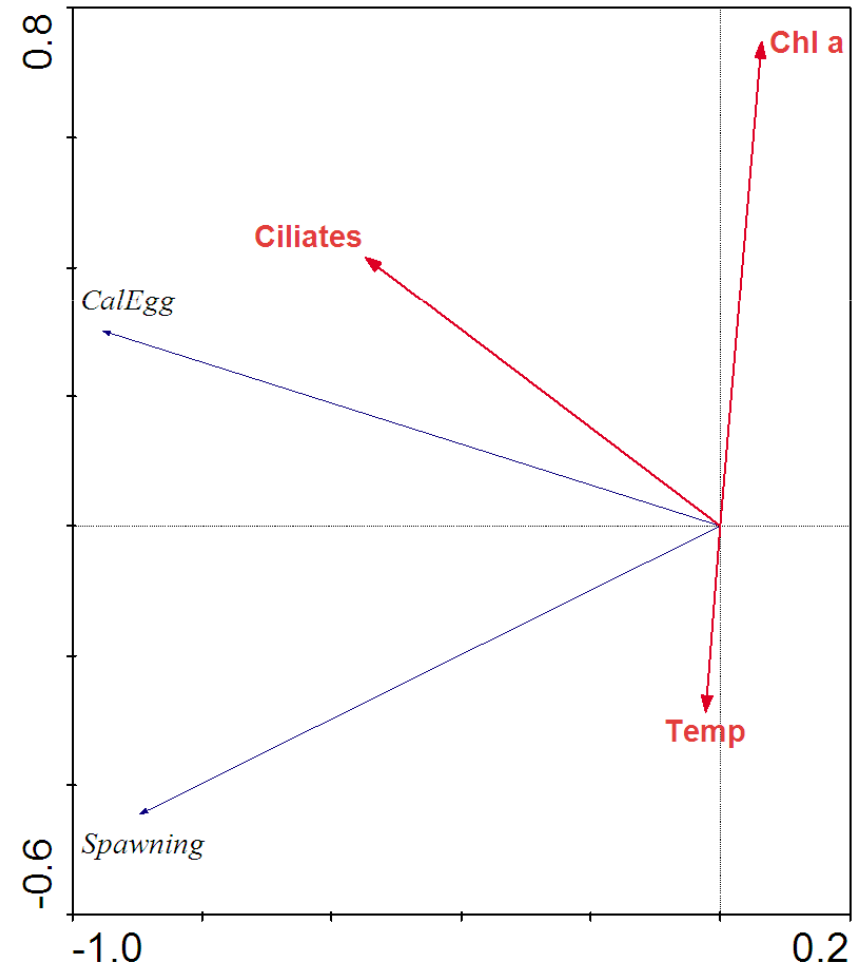
CANOCO 4.5 PCA

What controls egg production?

T. longicornis



C. finmarchicus



Summary

- *Temora* and *Calanus* were more abundant 2008 than 2009
- *Temora* is reproducing all summer
- *Calanus* reproduces in spring and autumn
- Gut content fairly similar both summers
- *Temora* produced under 20 eggs $f^{-1} d^{-1}$ on average in 2008 but over 40 eggs $f^{-1} d^{-1}$ on average in 2009
- Fecundity of *Calanus* was similar both year
- Plenty of phytoplankton to fuel the egg production
- **Great annual variability observed**
- **The role of ciliates?**