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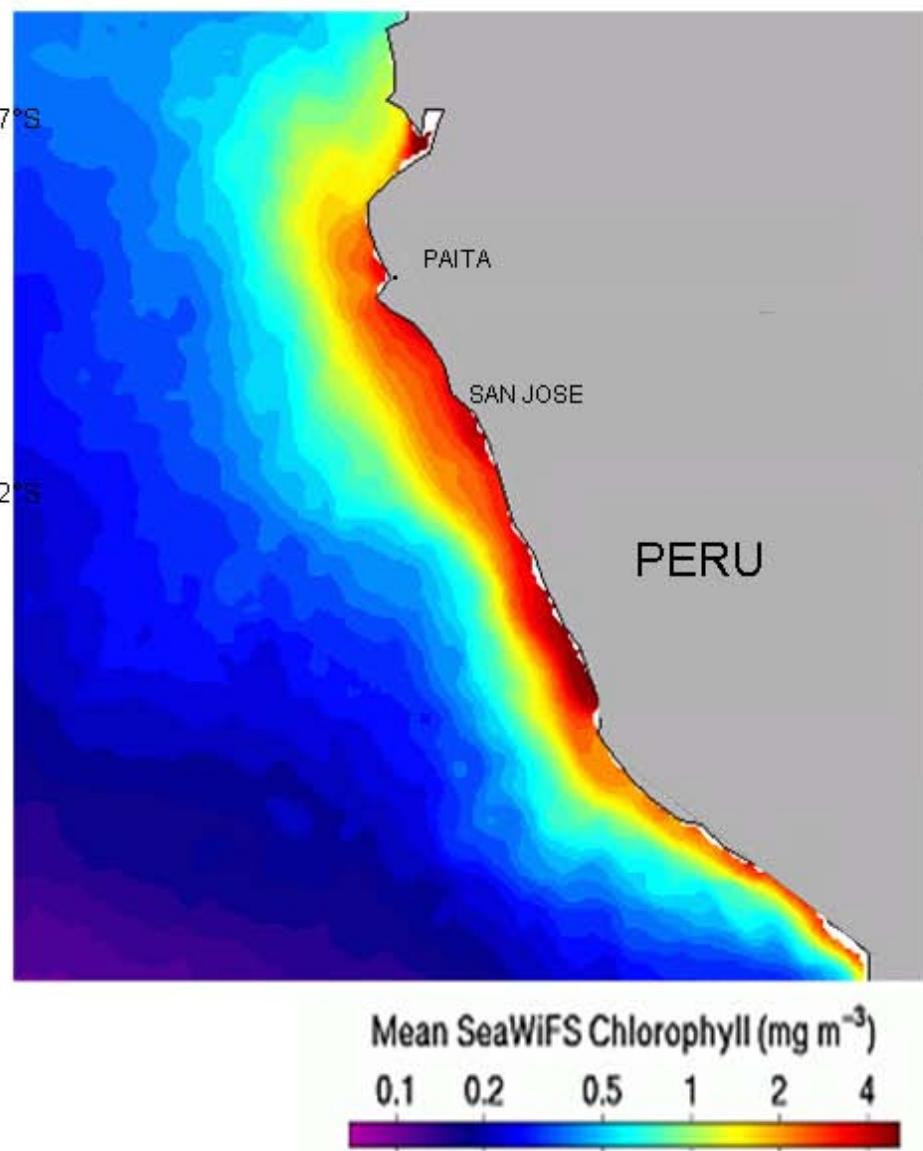
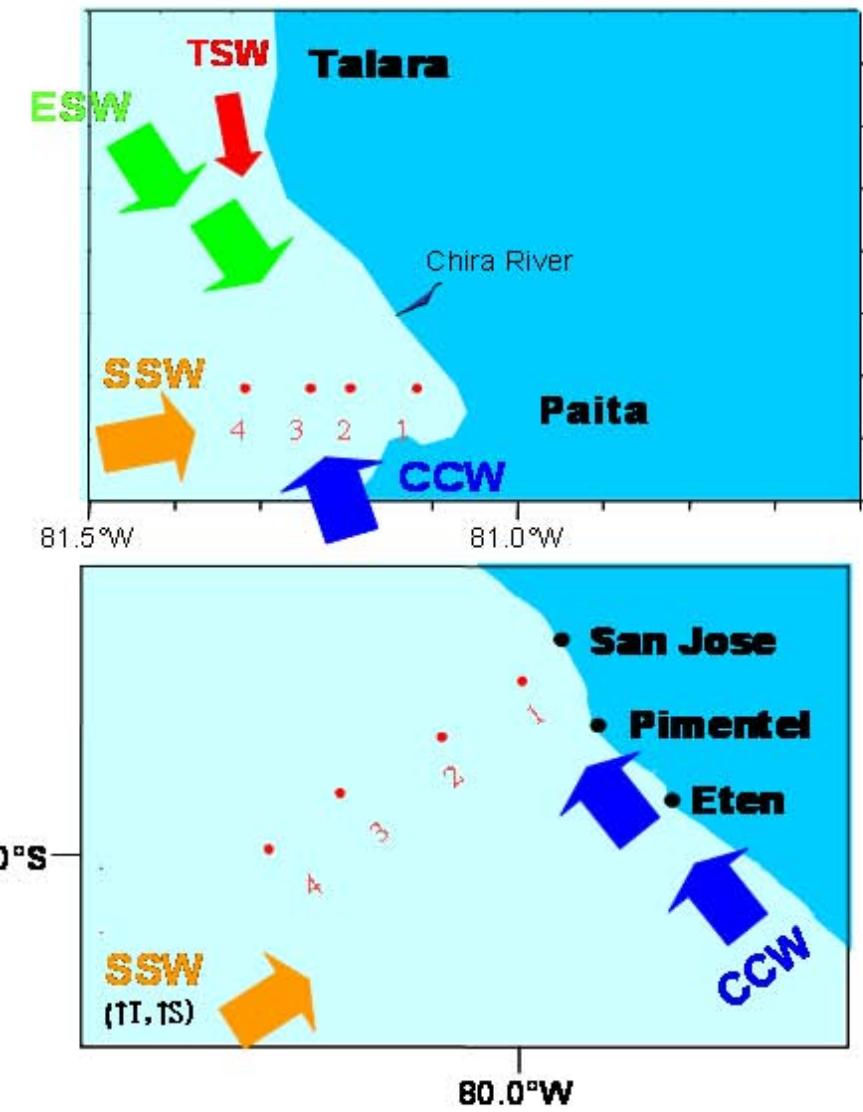
# **Variability in zooplankton community indices at two coastal areas of Peruvian waters between 1994 and 2006**

**Patricia Ayón, Katia Aronés, Carmela Nakazaki,  
Roberto Quesquen**

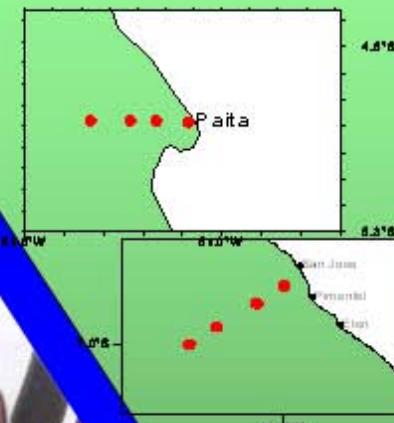
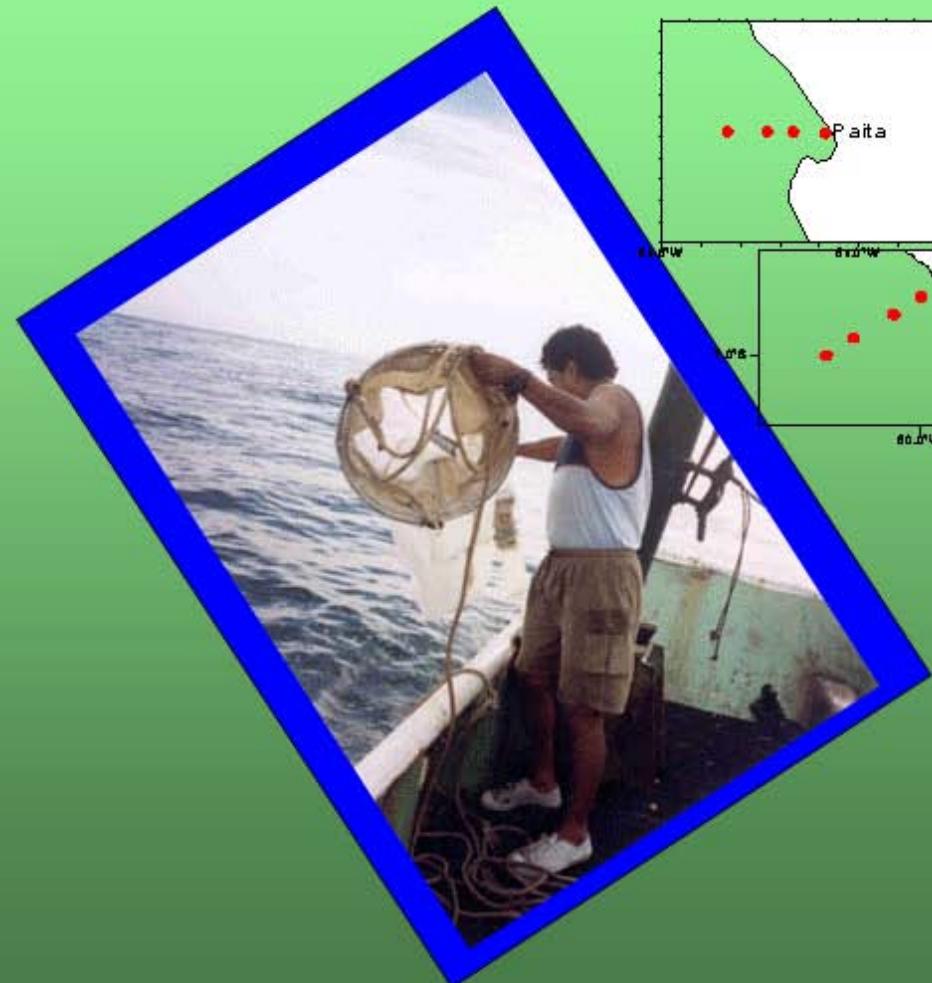
## OBJECTIVES

- TO SHOW AND COMPARE THE TRENDS OF COMMUNITY INDICES IN TWO AREAS OF THE PERUVIAN UPWELLING.
- TO RELATE THEM TO THE OCEANOGRAPHIC CONDITIONS.

## STUDY AREA



# SAMPLING



6 cruises per year  
4 stations on each location

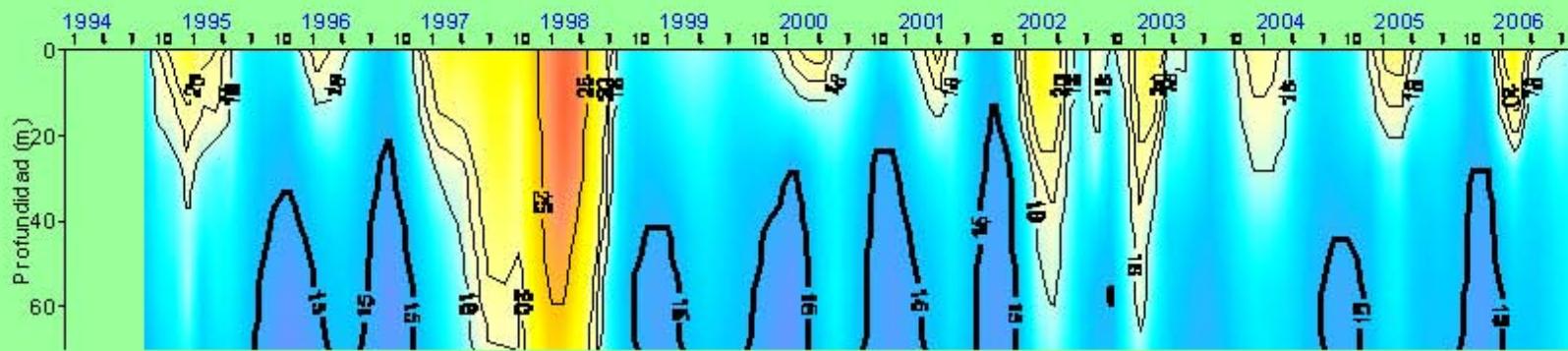
**Zooplankton**  
**Horizontal sampling**  
**WP-2 Net (300 µm)**

**Hydrography:** water column  
Temperature, salinity, oxygen

**-Chemistry and biology:**  
Nutrients, chlorophyll-a

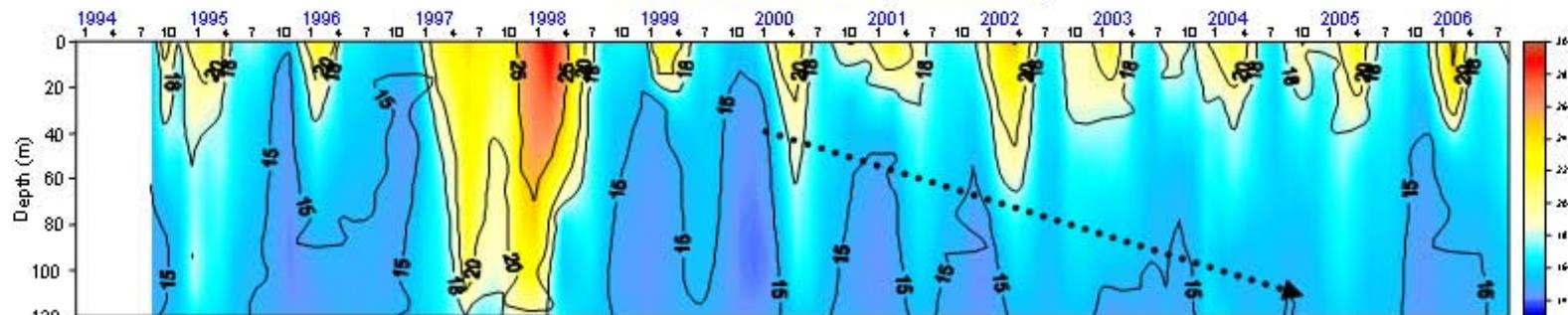
# **RESULTS**

# OCEANOGRAPHIC CONDITIONS

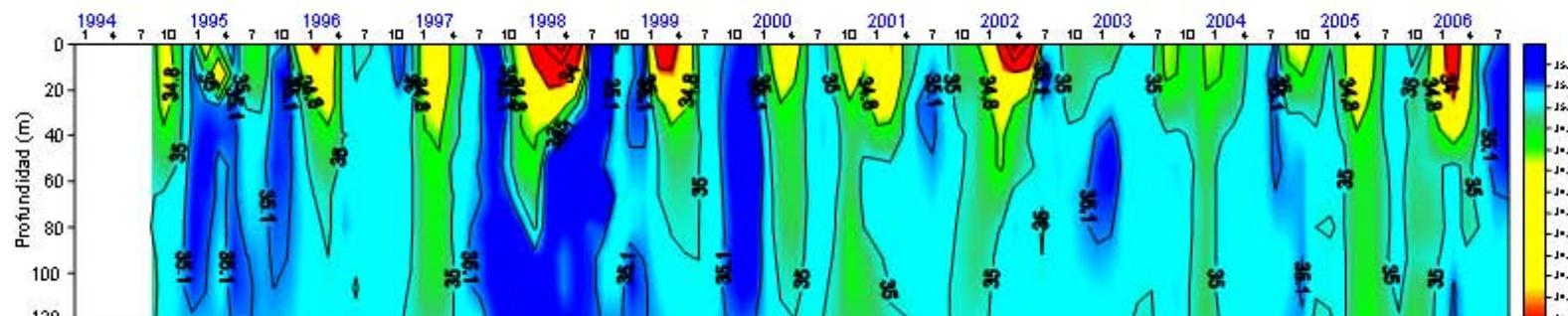


### PAITA SECTION (1994-2006)

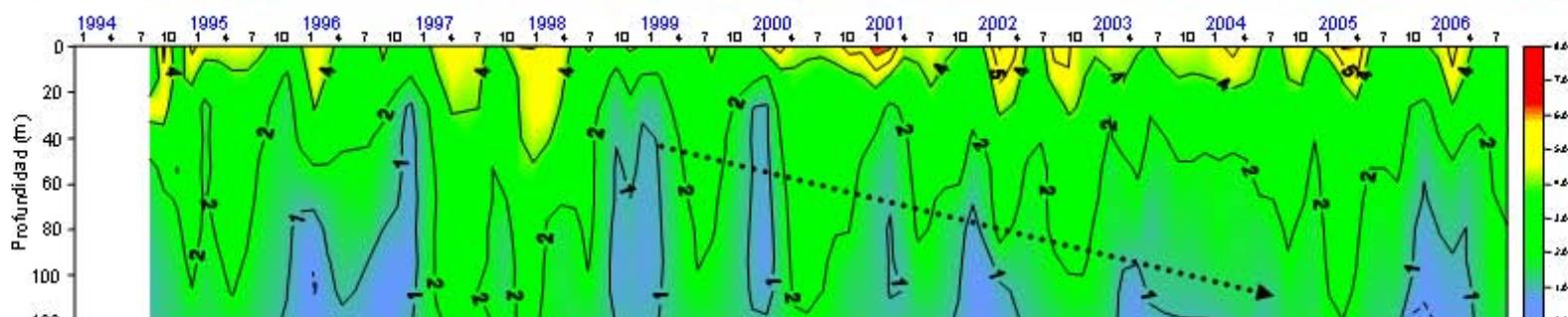
Temperature  
(°C)



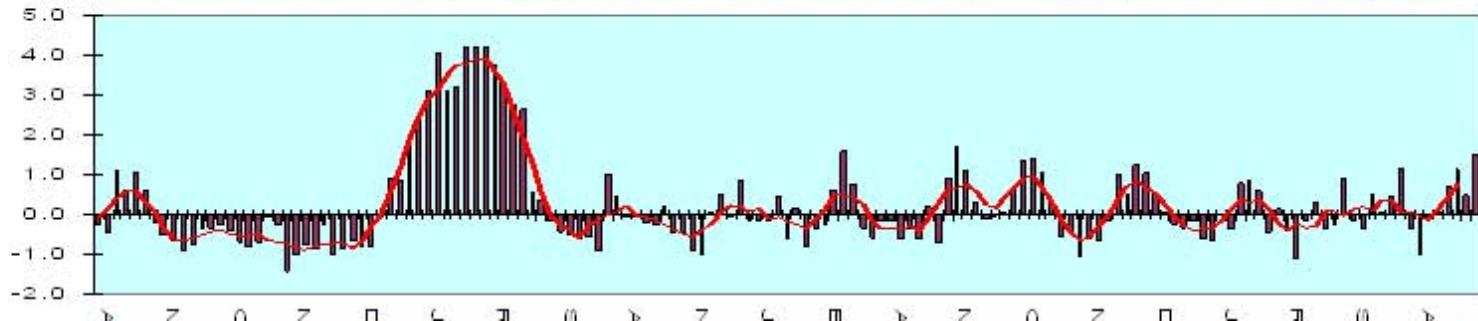
Salinity



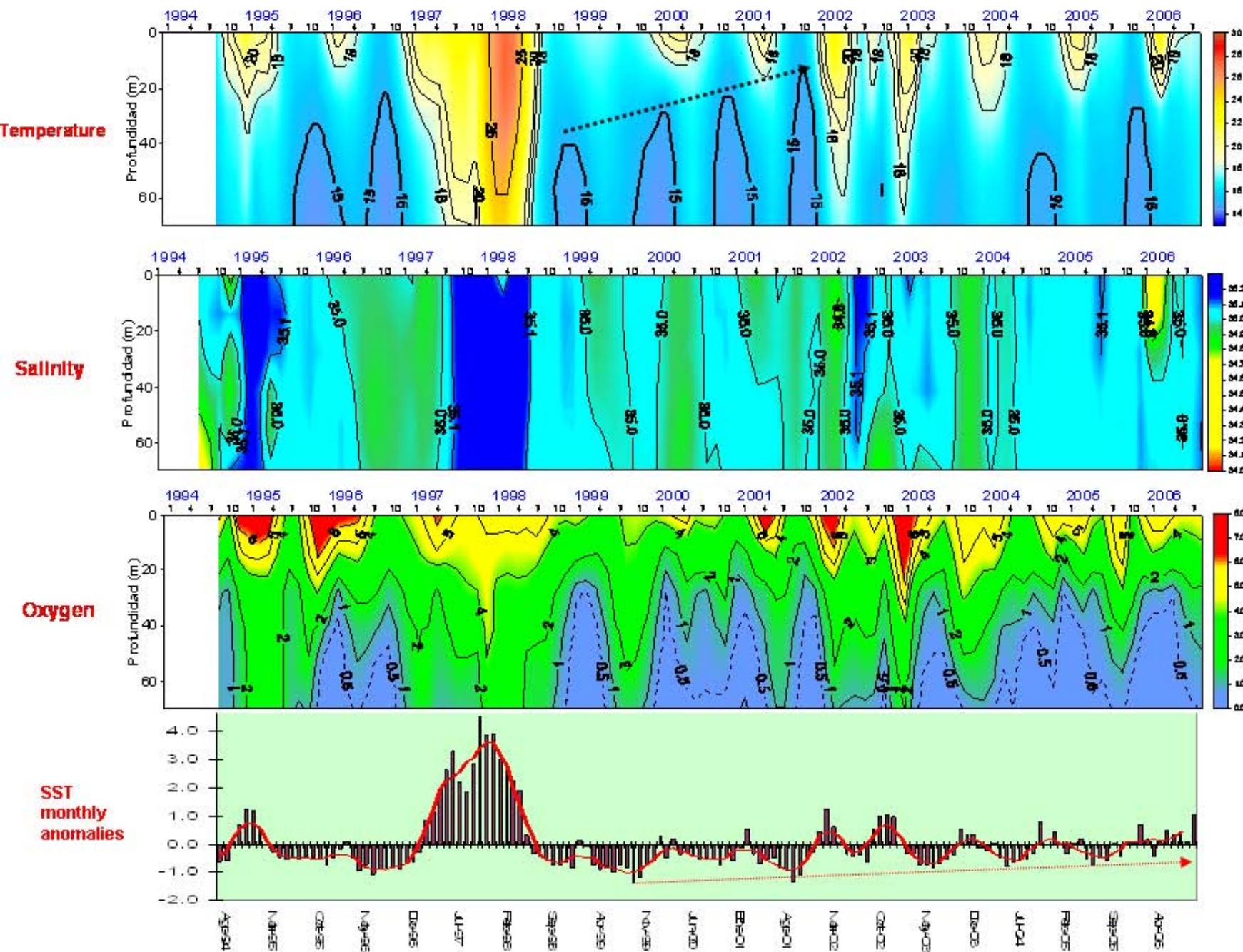
Oxygen



anomalies  
monthly SST



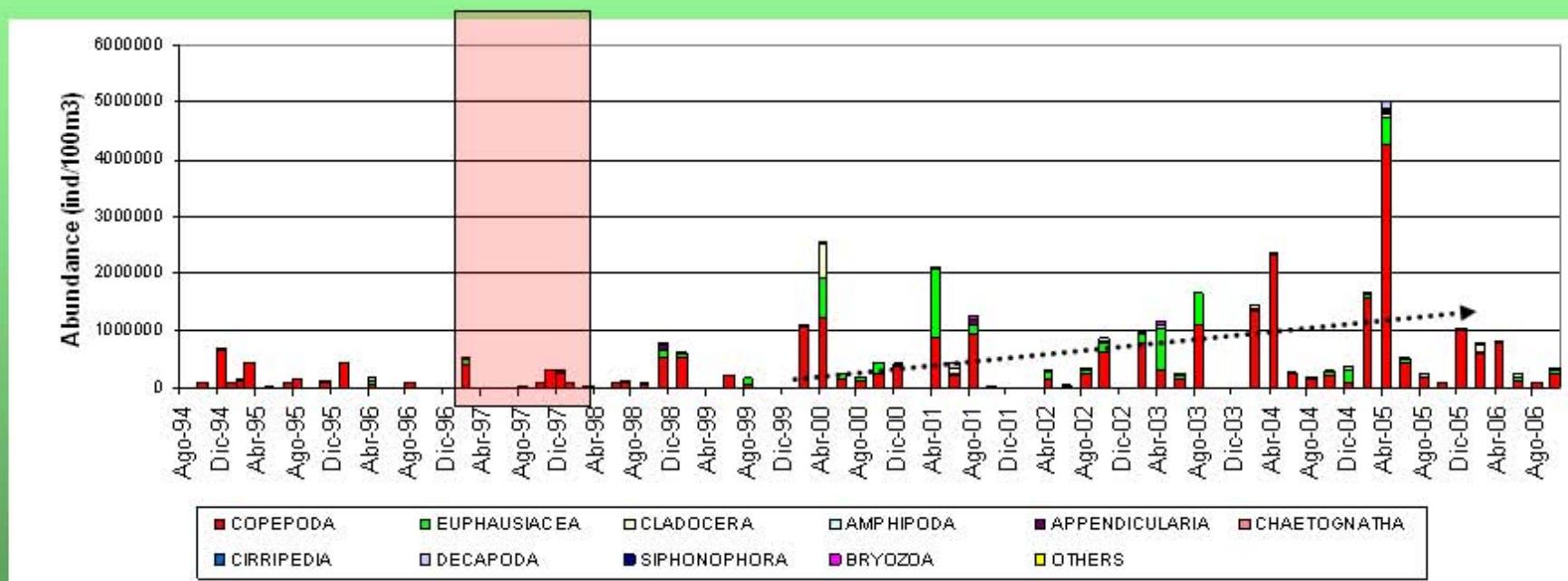
# SAN JOSE SECTION (1994-2006)



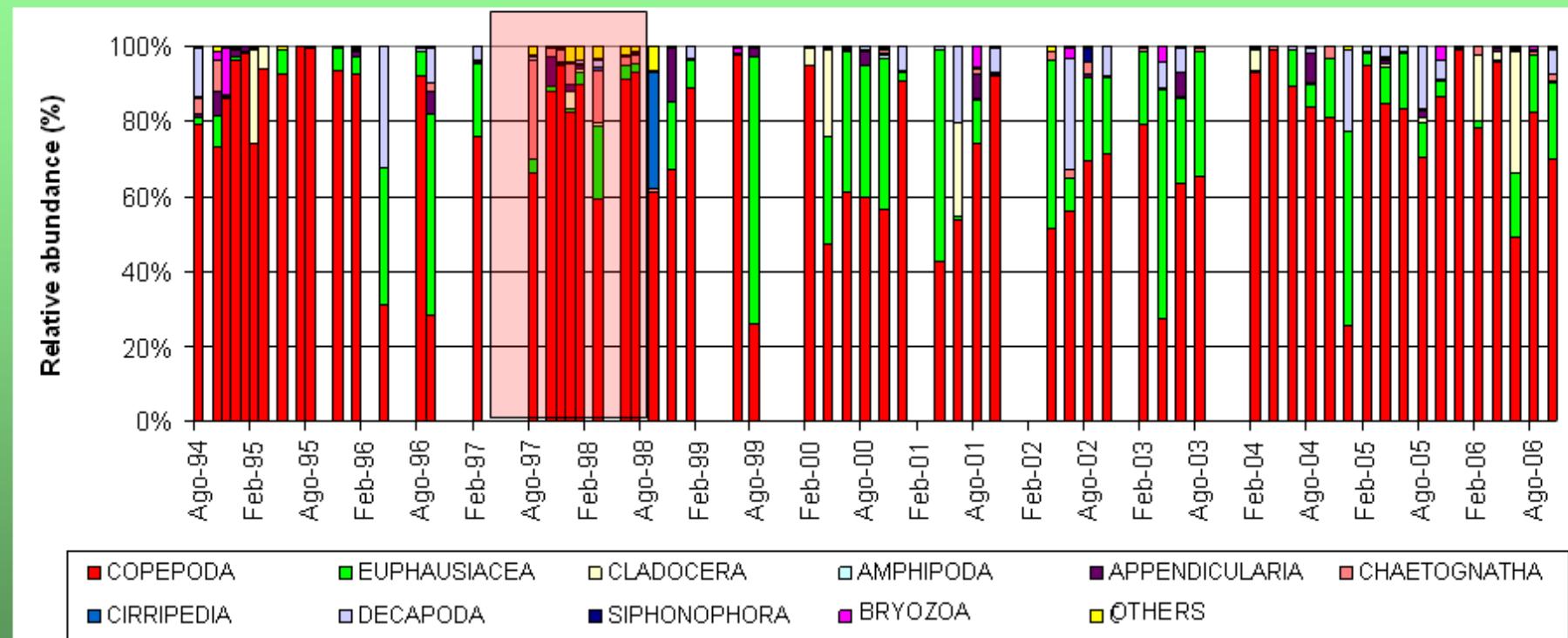
A microscopic photograph showing a diverse community of zooplankton. In the upper left, a large transparent copepod with purple-stained eggs is visible. To its right, several smaller, yellowish-brown copepods are swimming. In the center, a rotifer with a distinct wheel-like feeding apparatus is prominent. Other smaller, dark, oval-shaped organisms are scattered throughout the field of view.

# ZOOPLANKTON COMMUNITY CHARACTERISTICS

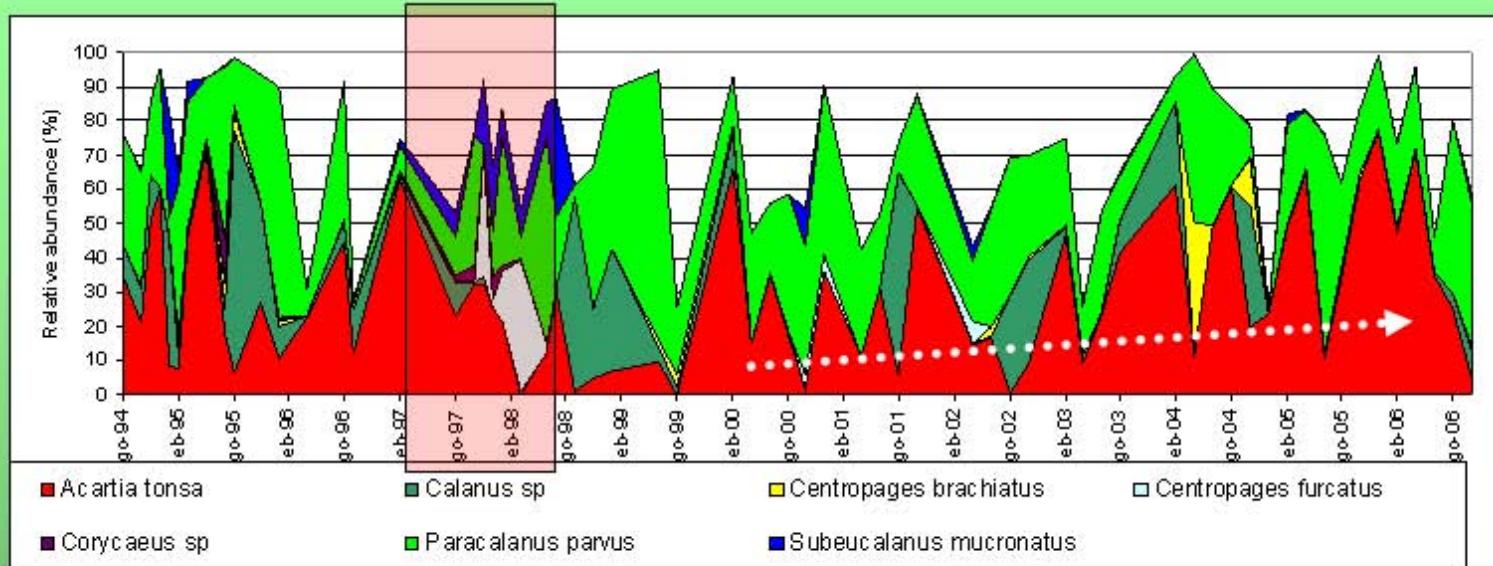
## MEAN ZOOPLANKTON ABUNDANCE OFF PAITA (1994-2006)



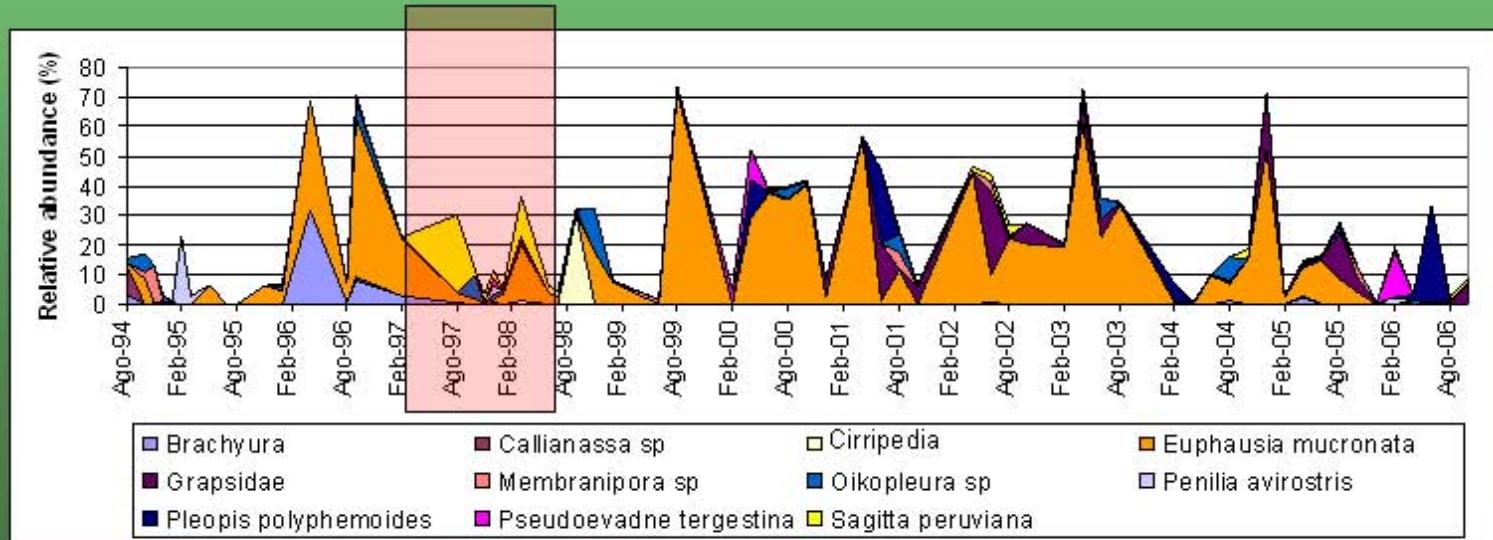
## RELATIVE ABUNDANCE OF MAIN GROUPS OF ZOOPLANKTON



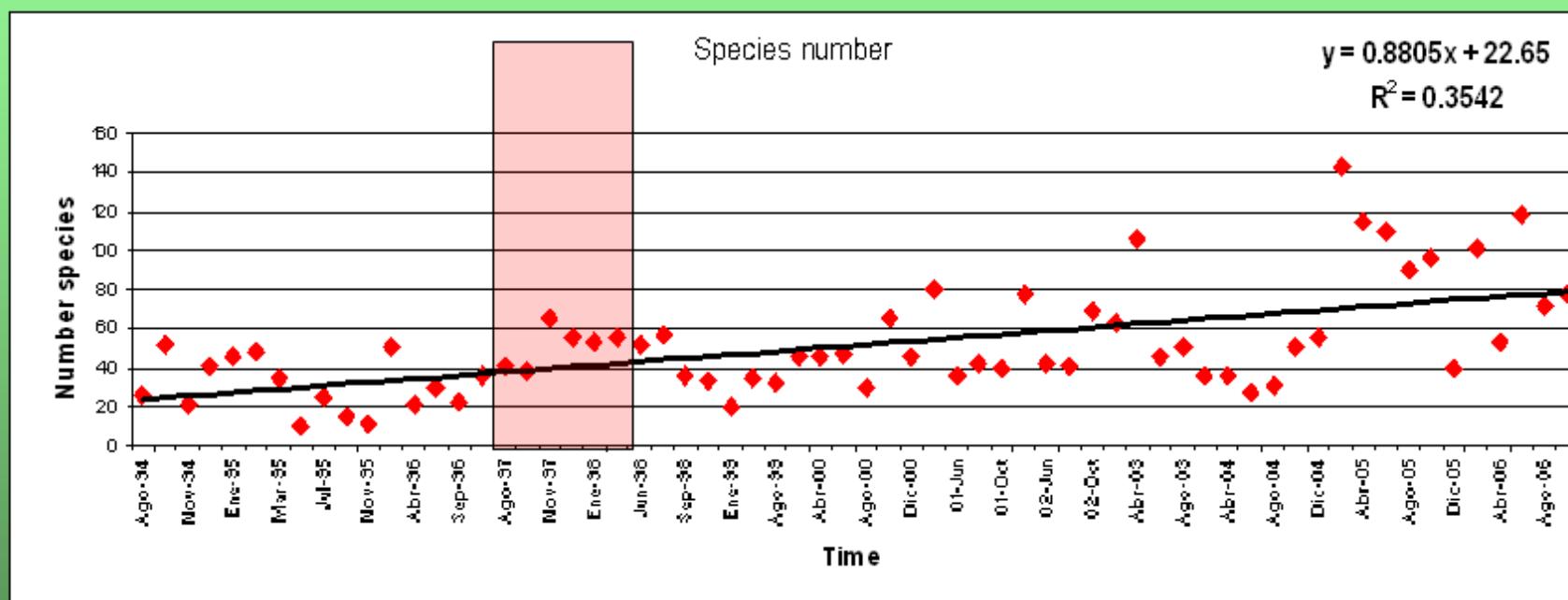
## RELATIVE ABUNDANCE OF DOMINANT COPEPOD SPECIES



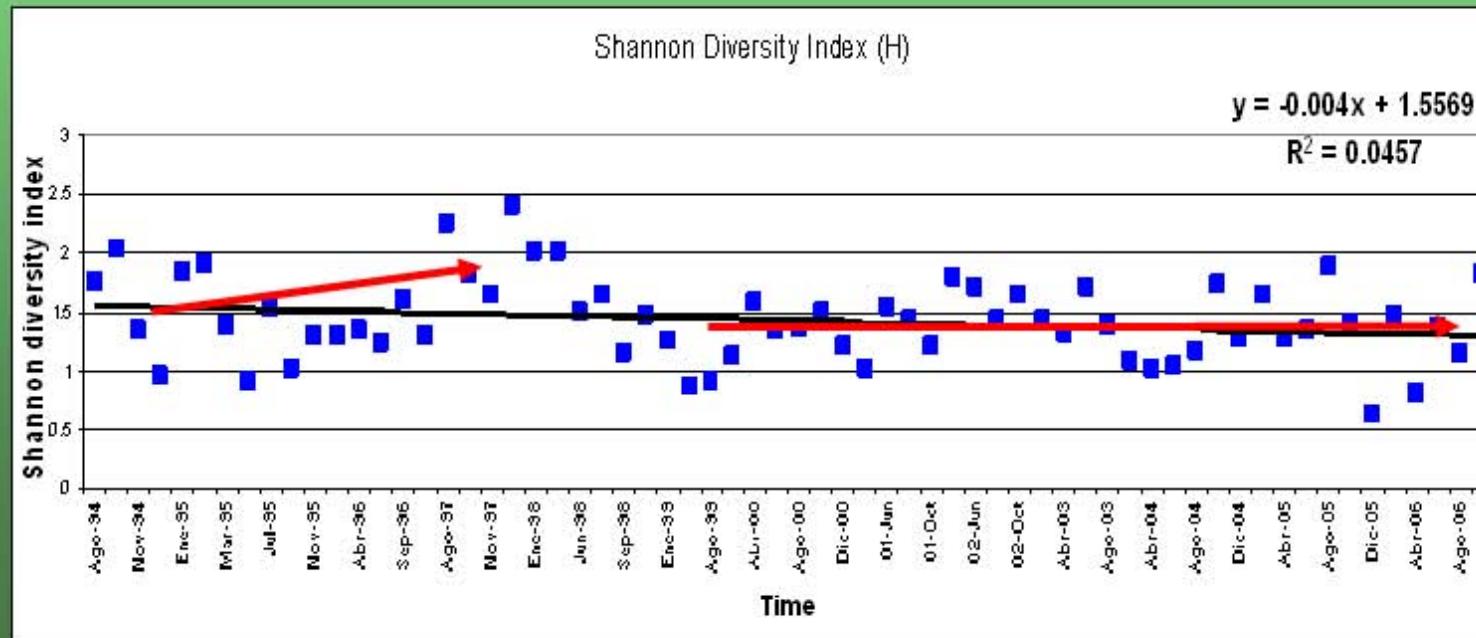
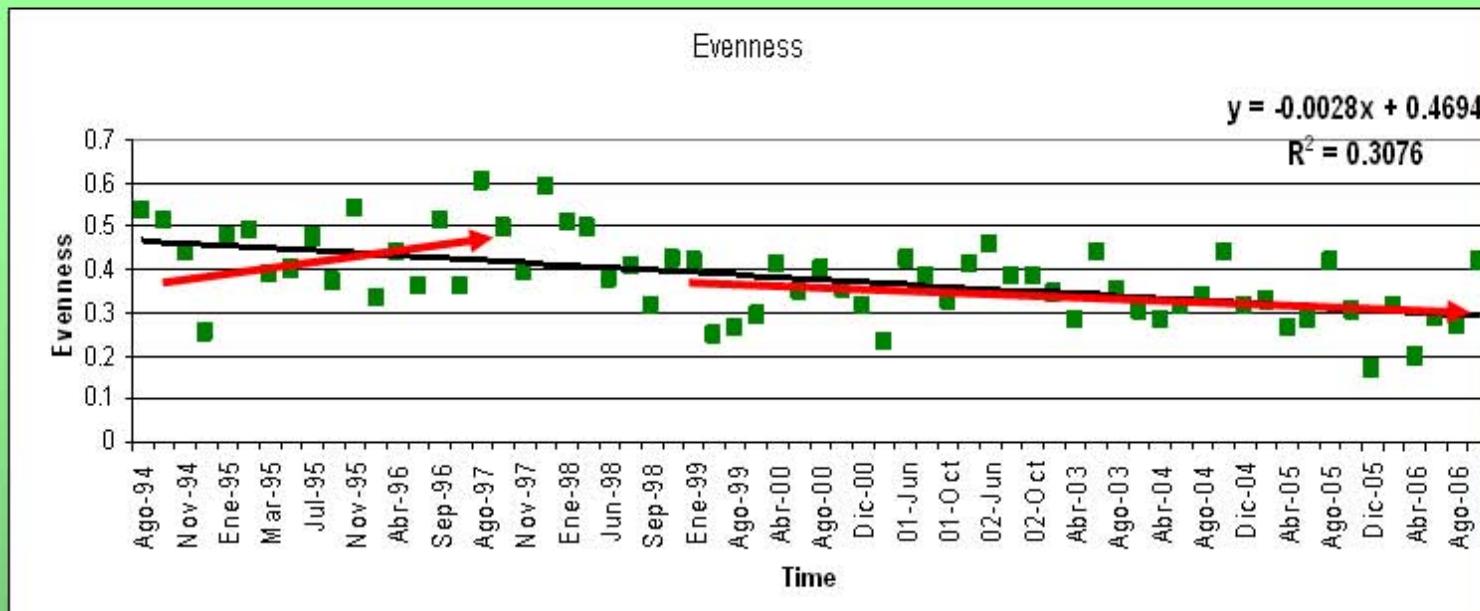
## RELATIVE ABUNDANCE OF OTHER GROUPS



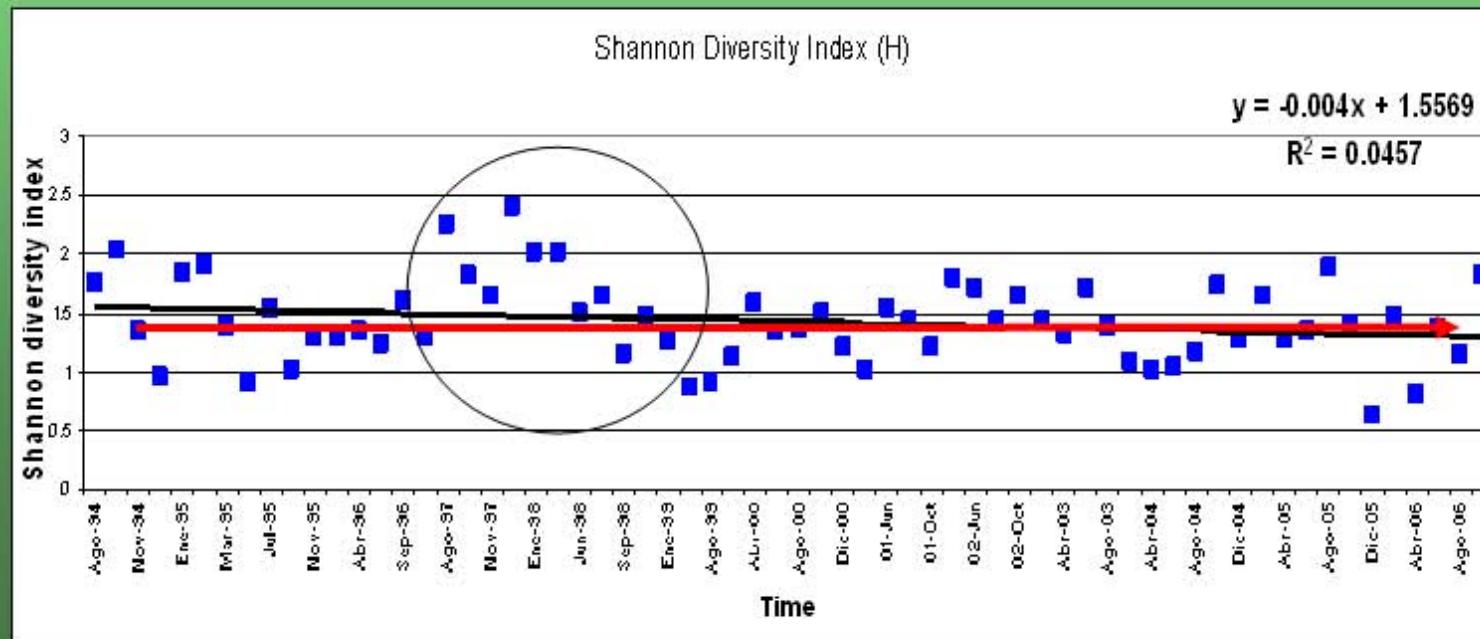
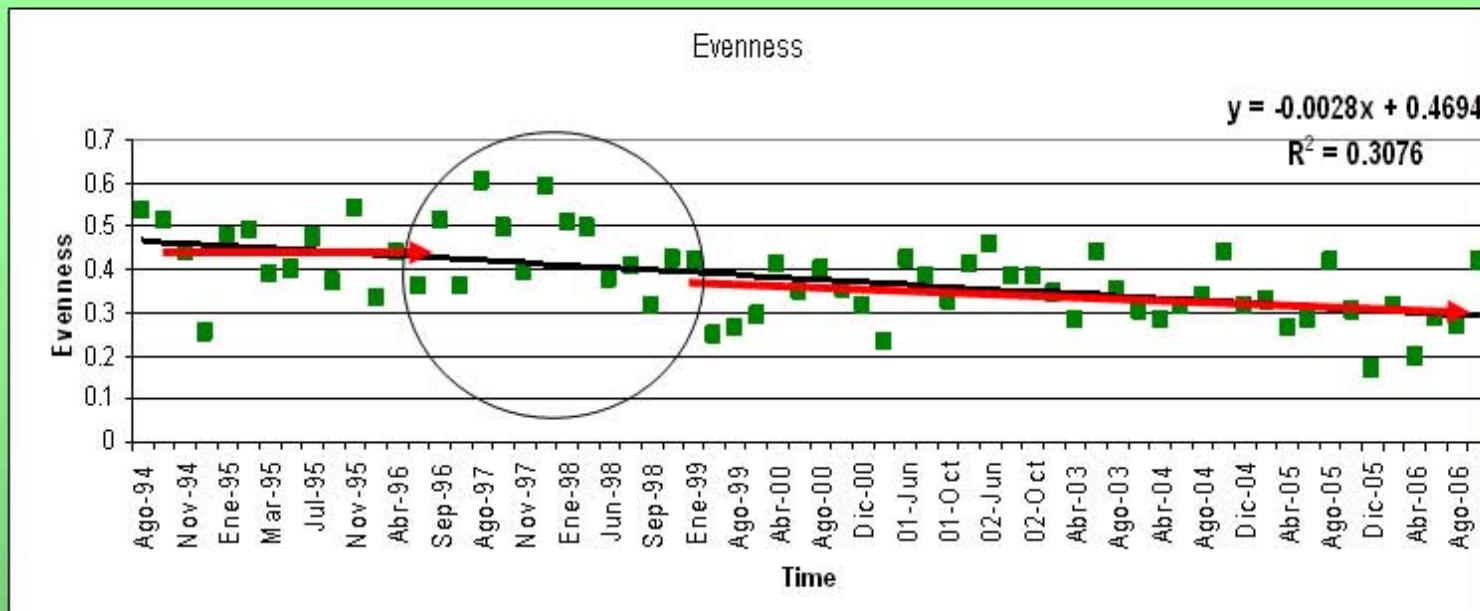
## GENERAL TREND IN SPECIES NUMBER



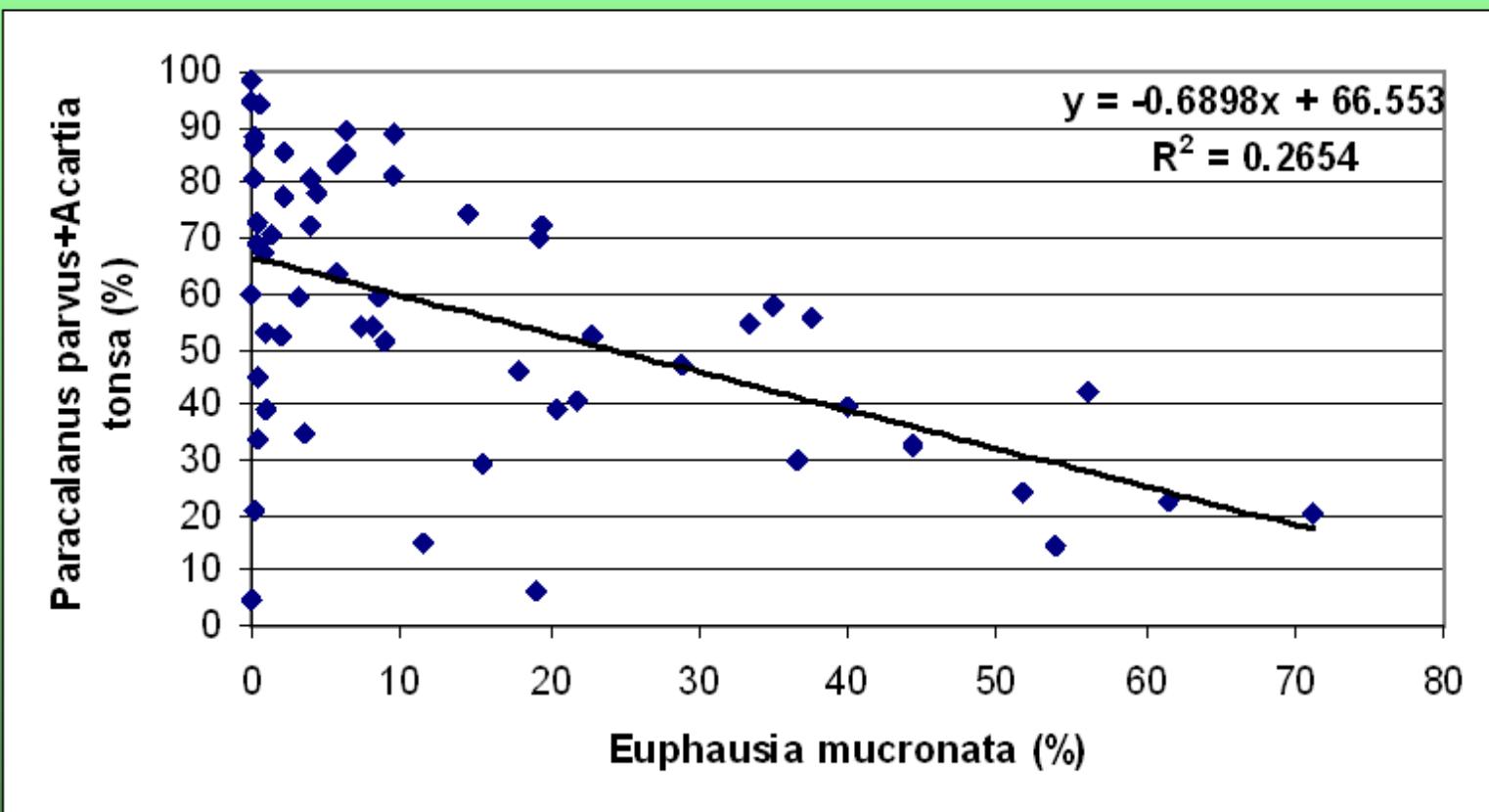
# BIOLOGICAL INDICES



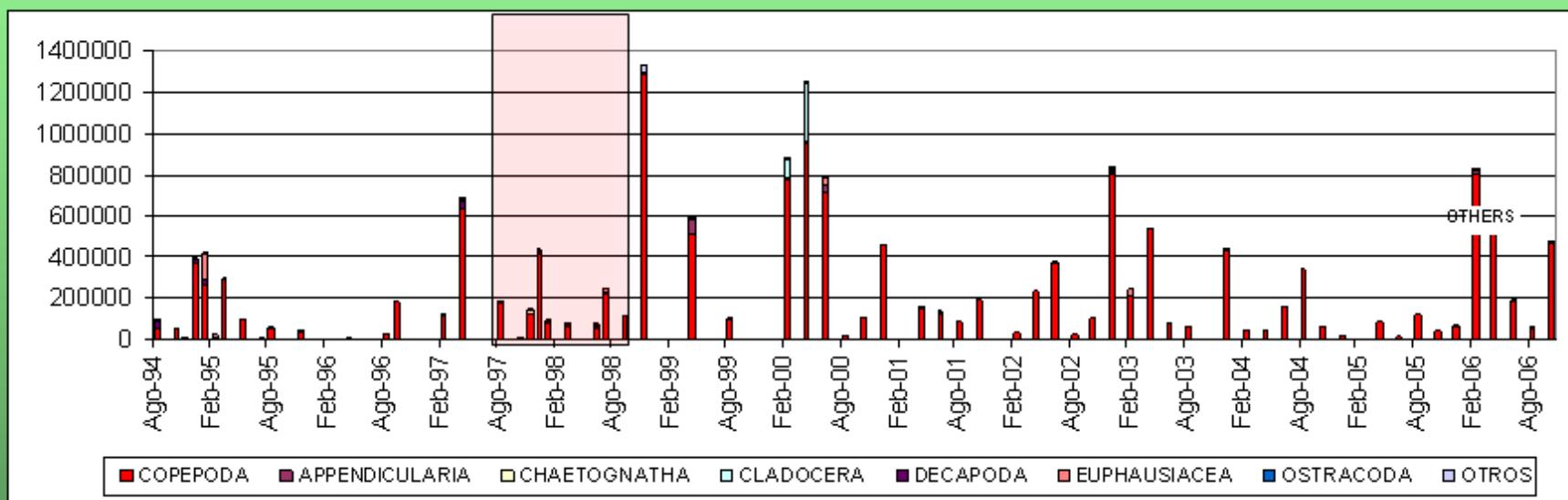
# BIOLOGICAL INDICES



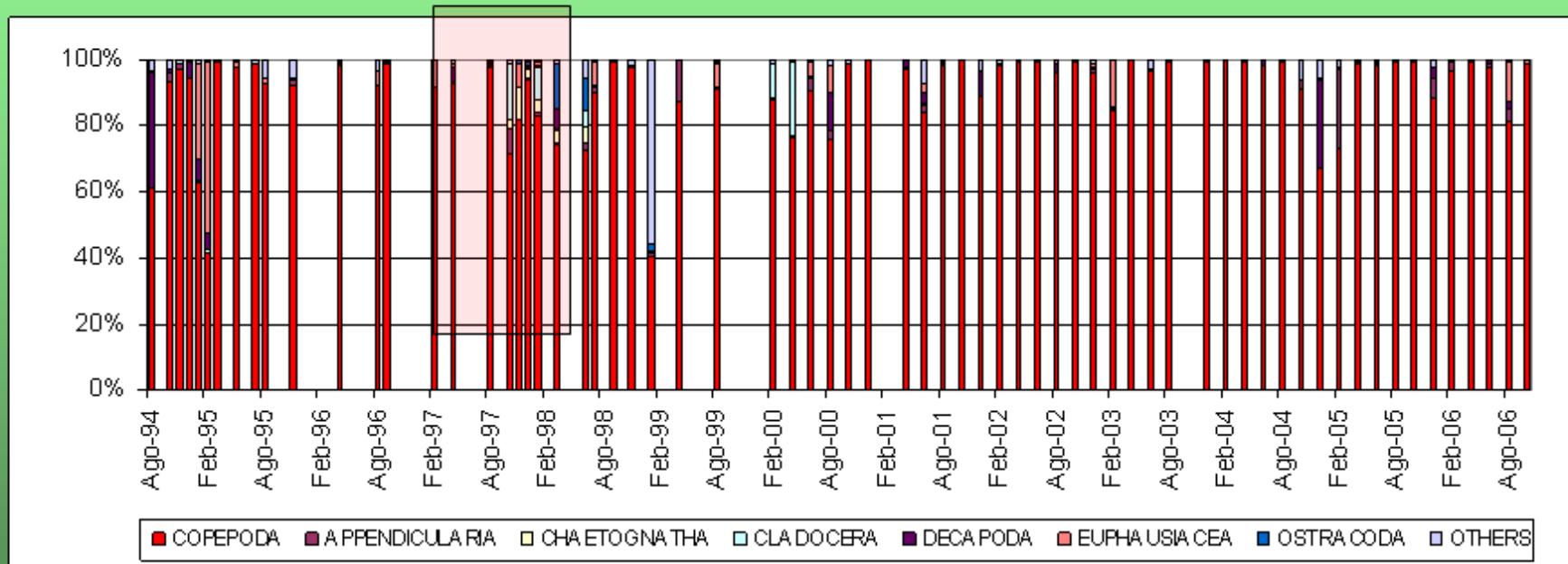
## Euphausiids vs Copepods



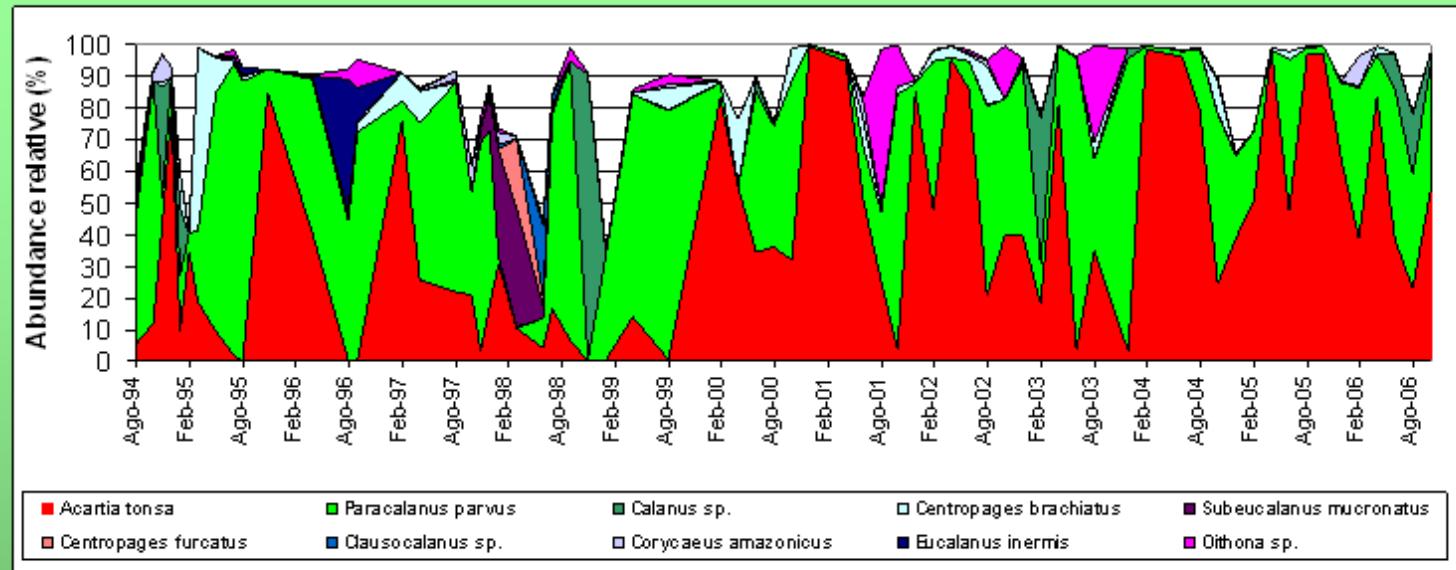
## MEAN ZOOPLANKTON ABUNDANCE OFF SAN JOSE (1994 - 2006)



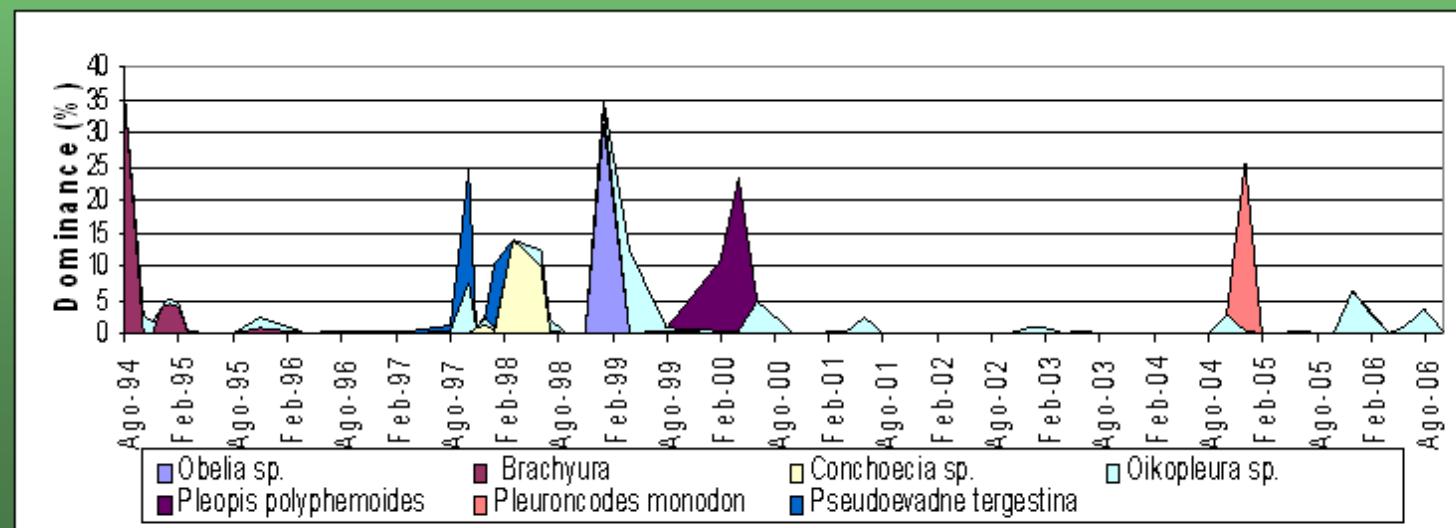
## RELATIVE ABUNDANCE OF MAIN GROUPS OF ZOOPLANKTON



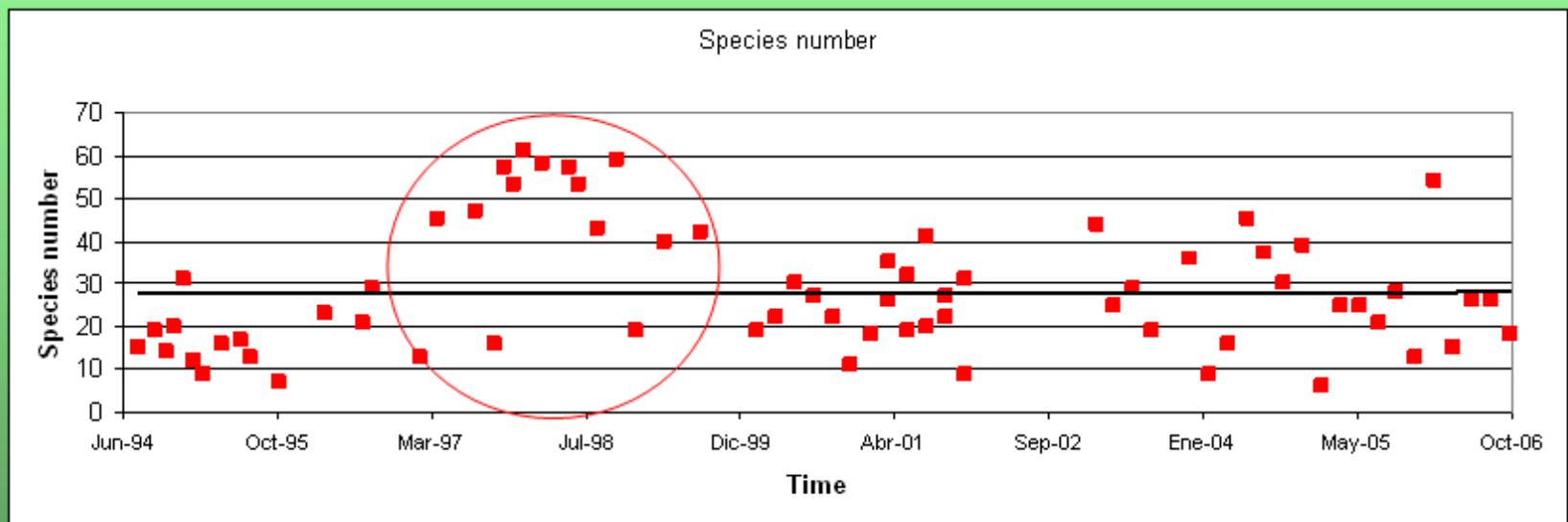
## RELATIVE ABUNDANCE OF DOMINANT COPEPOD SPECIES



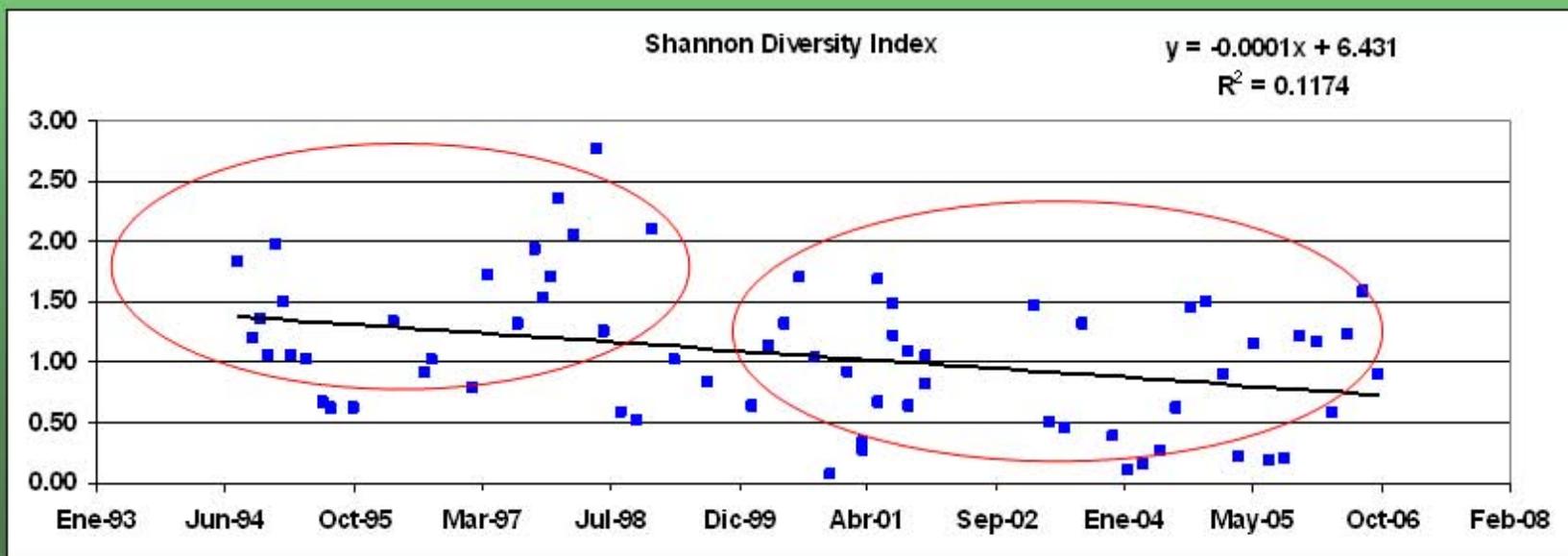
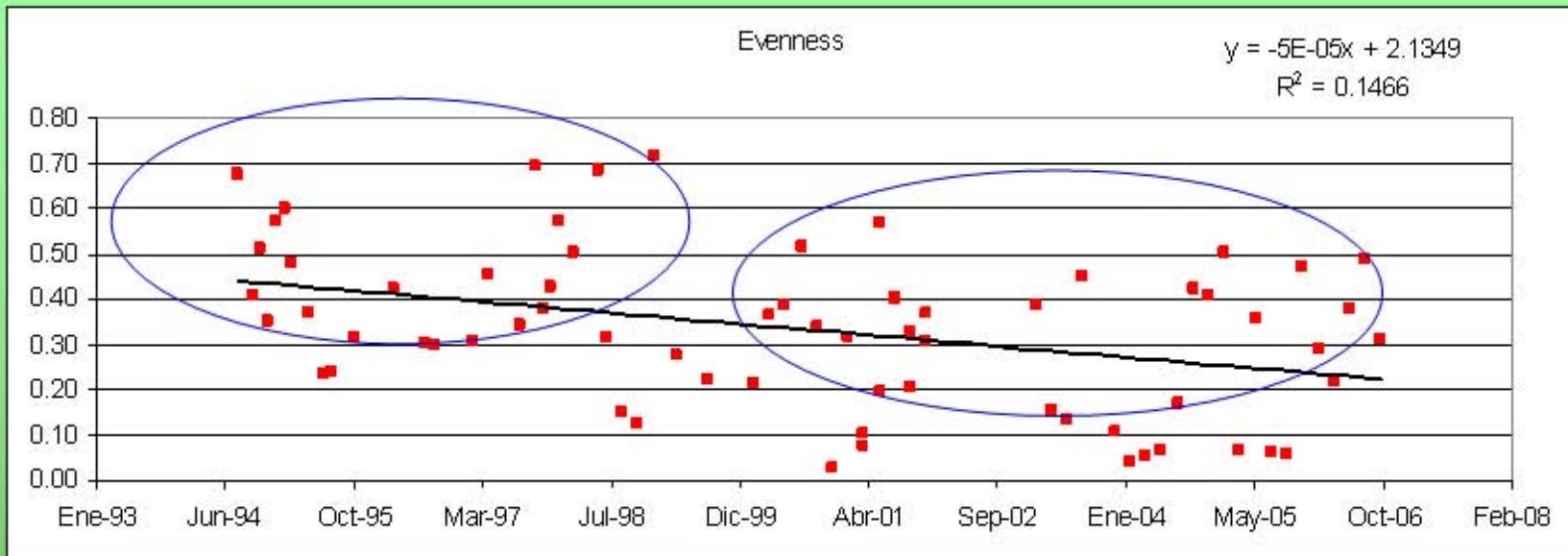
## RELATIVE ABUNDANCE OF OTHER GROUPS



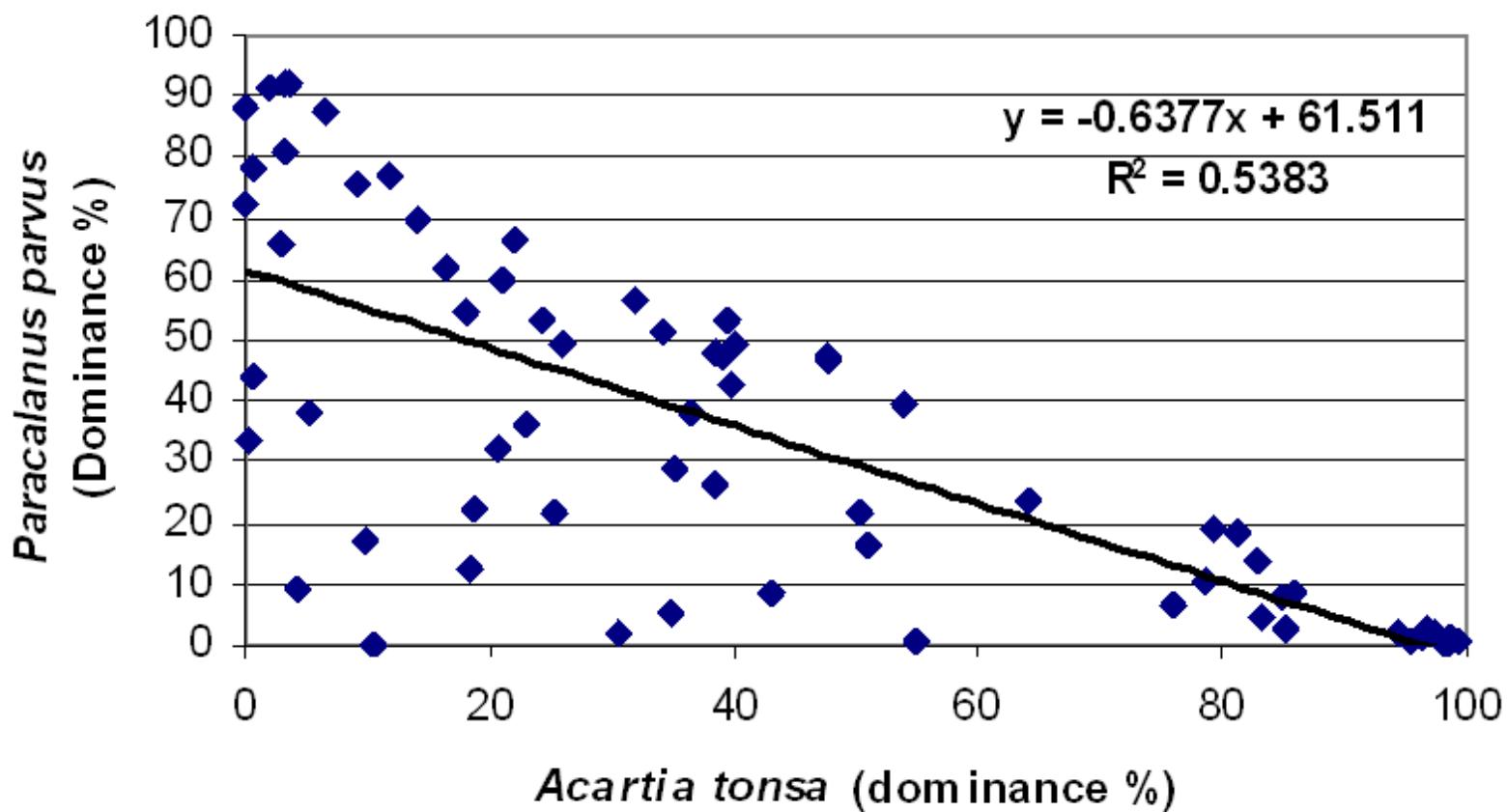
## GENERAL TREND IN SPECIES NUMBER



## BIOLOGICAL INDICES



# SAN JOSE



# CONCLUSIONS

- The zooplankton community is more diverse and abundance is higher off Paita than off San Jose, probably due to environmental variability (front of encounter of three different surface water masses).
- Copepods dominate both communities. However, at Paita, euphausiids are also important.
- *Acartia tonsa* dominates in cold waters phases, while *Paracalanus parvus* is more abundant during warm waters phases.
- Only the strong El Niño 1997-98 affected the abundance of both communities.
- After ENSO 97-98 changes were noticed in the abundance of *Acartia tonsa* and the biological indices.

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## Variability in zooplankton community indexes at two coastal areas of Peruvian waters between 1994 and 2006

Arigato gozaimasu!  
¡Muchas gracias!  
Thank you very much!