Trophic resources partitioning of hake species off Namibia

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Merluccius paradoxus *M. capensis*

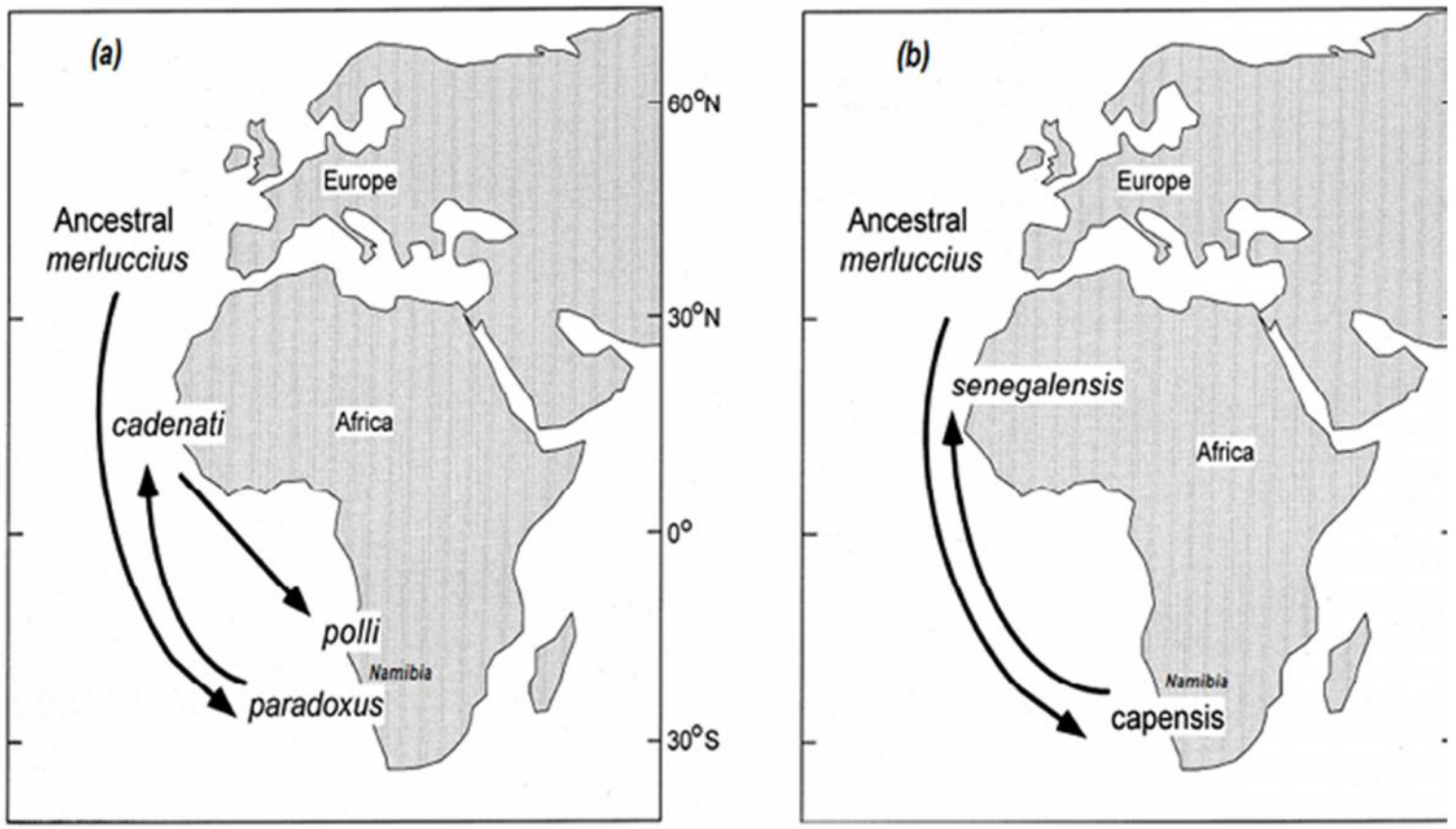


Figure 1.2: A geographic model of the origin of a) *Merluccius paradoxus* and b) *Merluccius*

Diets

Assorovo and Kalinina, 1979 ; *Macpherson and Roel, 1987; Payne et al. 1987 ; Roel and Macpherson, 1988 ; Punt el al. 1992, Pillar and Barange, 1993, Macpherson and Gordoa,1994; Pillar and Wilkinson, 1995;* ***Traut, 1996.***

Diet: Consist **of** crustaceans, mesopelagic fish and cephalopods

Mesopelagic fish: were of more dietary importance in winter

Euphausiids: eaten more frequently in summer

cephalopods: were of minor importance as compared to fish for *M. capensis,*, but contributed relatively more to the diet of *M. paradoxus*

Hake : important prey for *M. capensis* than *M. paradoxus*.

Cannibalism: not related to the density of the small conspecifics nor to the density of alternative prey, but large hake have a dietary preference for small conspecifics

Trophic guild

- Same trophic guild - that use similar food resources),
- Ecologically identical competitors cannot coexist

- Resource partitioning can strengthen or weaken competitive interactions

Trophic resources portitioning

Resource partitioning among community members is frequently attributed to competitive inter-actions

In an environment with

- limited resources, this overlap may result in competition
- unlimited resources, competition would not be expected

- Are there signs of trophic resource partitioning between the two species of hake ?

Stable isotopes
(^{15}N and ^{13}C)

Basis: ^{13}C and ^{15}N in animal tissues closely reflect those of their assimilated prey,

There is a predictable enrichment of the heavier isotopes because preferential metabolism of the lighter ^{12}C and ^{14}N isotopes

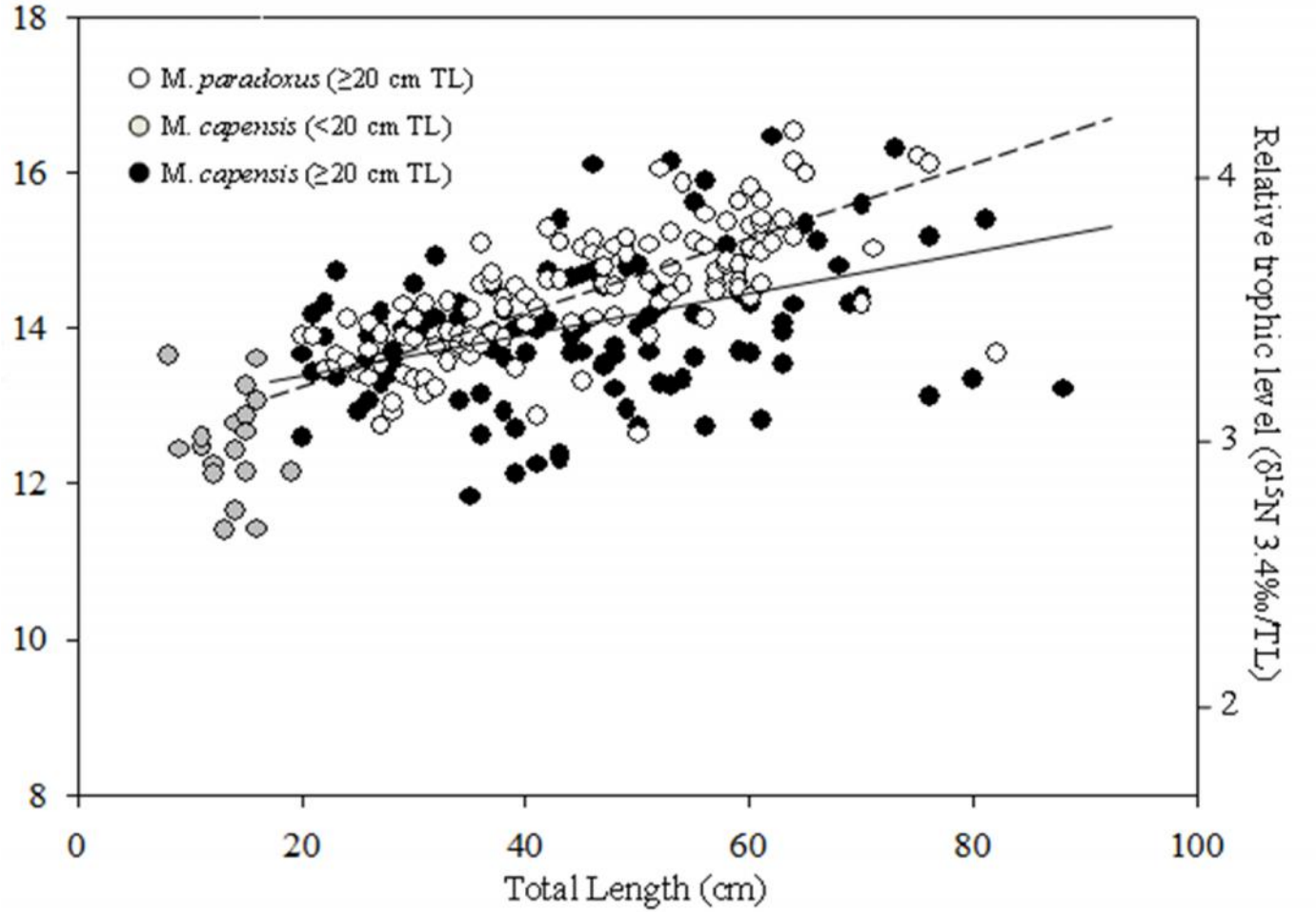
Trophic Biomarkers

- Stable isotopes
  - Trophic Niche Camporsion
  - Niche partioning with

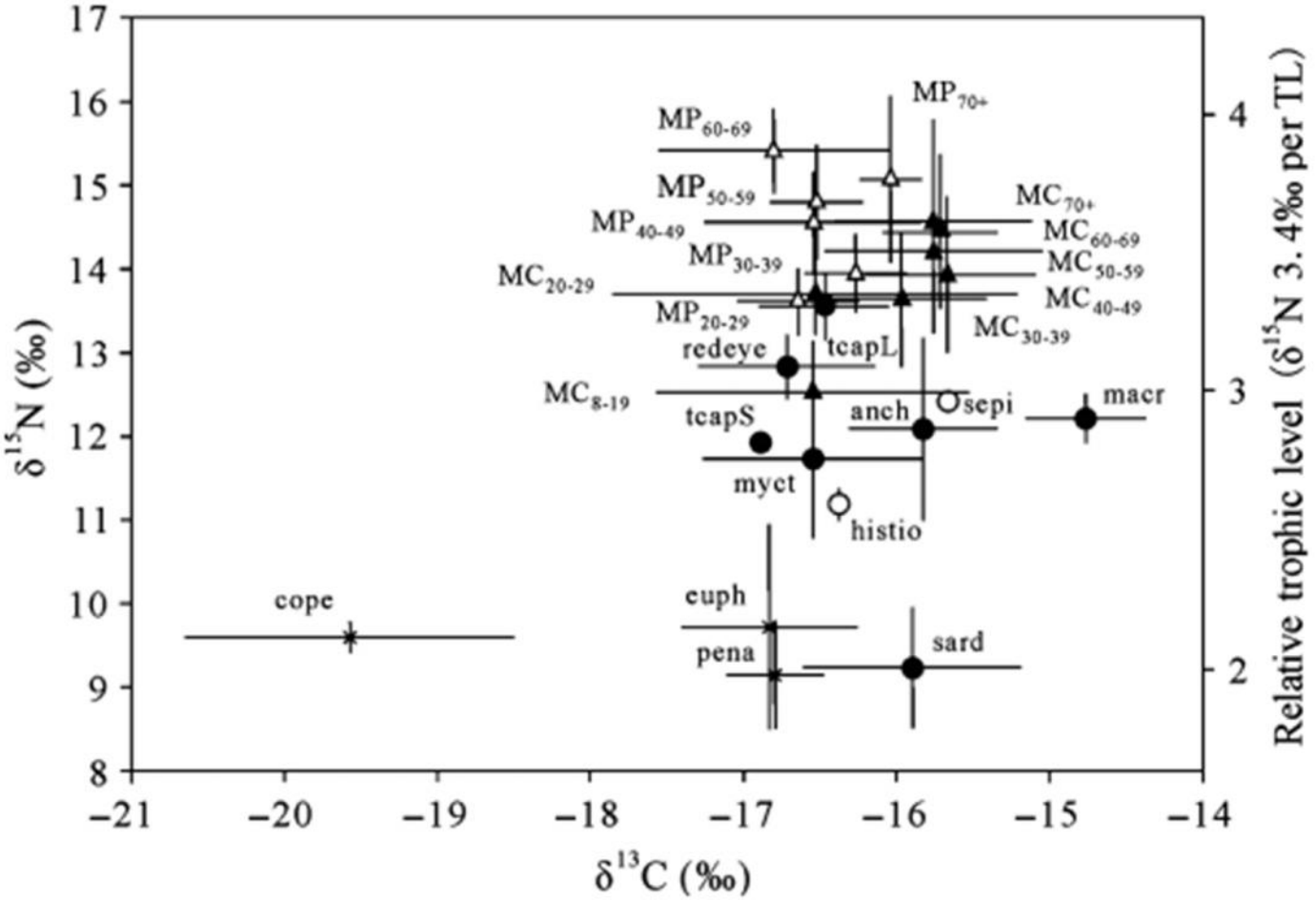
- Neutral fatty acids

- Discrimant analysis

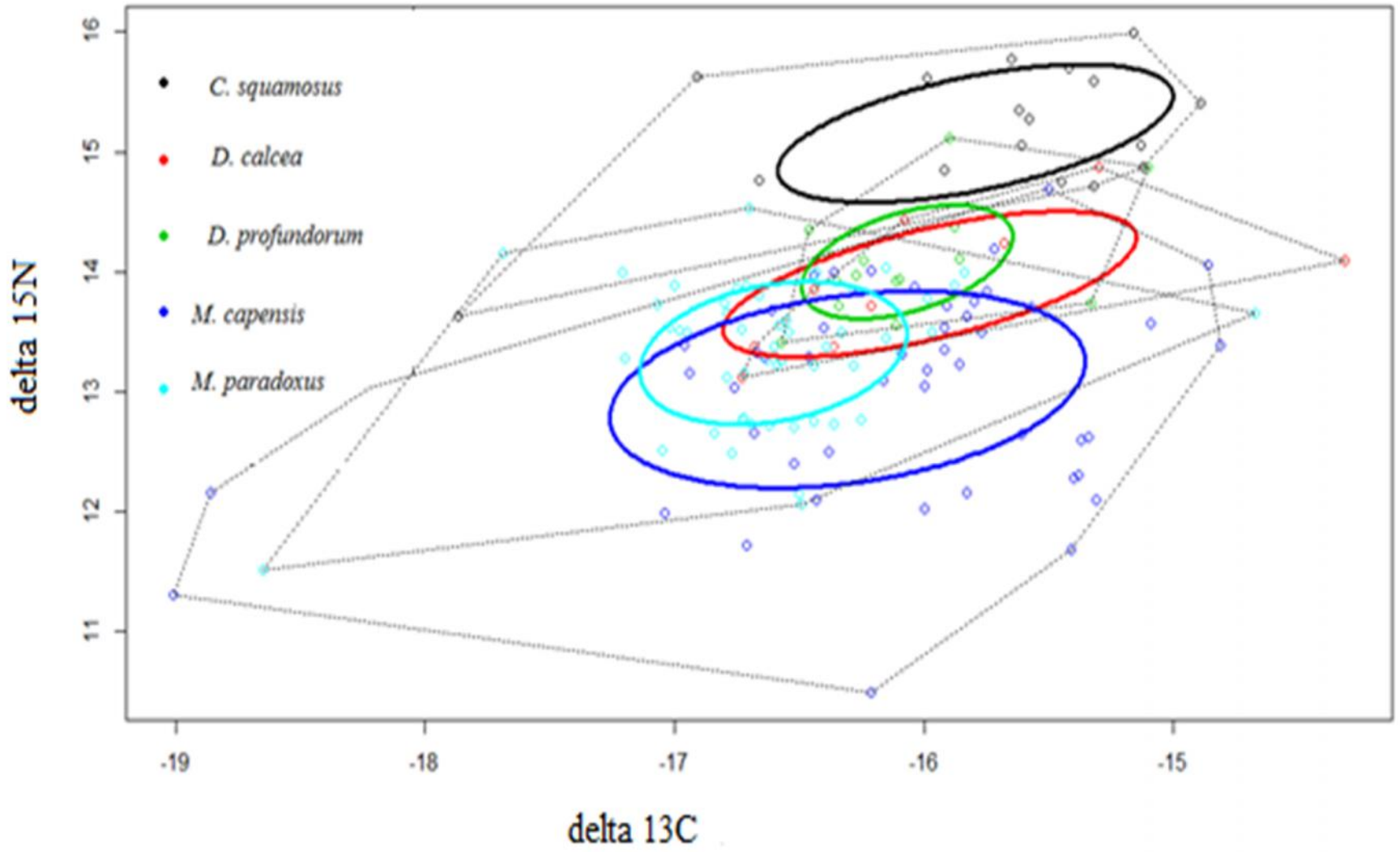
A: Ontogenic trophic resource partitioning



Trophic level…?



Trophic niche partitioning ?



Conclusions

- There a signs of trophic resource partitioning between the hake species
- Limited understanding of the nature of resource partitioning in hake species
- Long term data collection on feeding habits hake needed.

Thank you

Acknowledgements

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THANK YOU