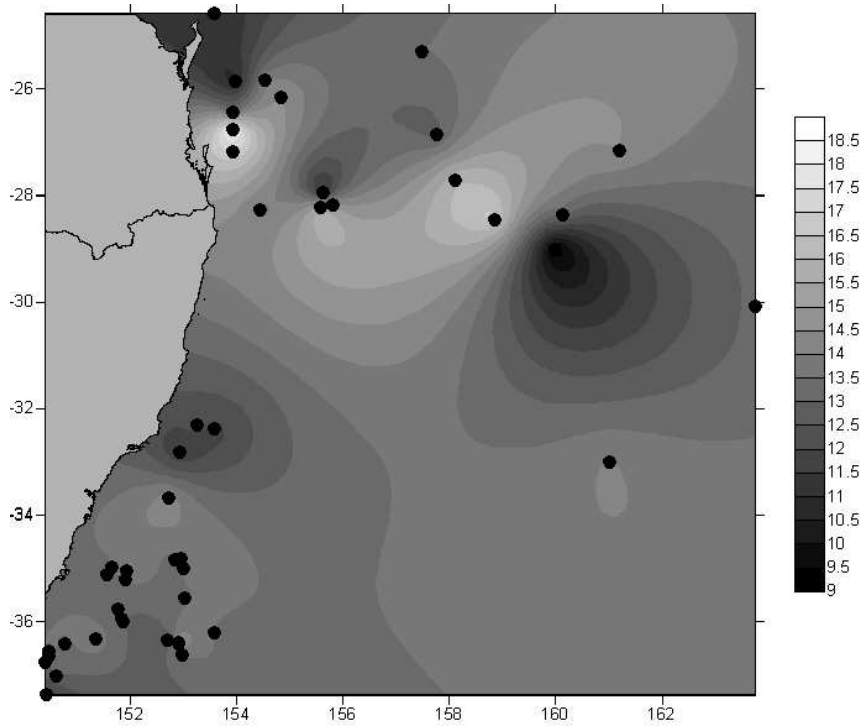

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Stable isotopes and fish: from trophic studies to understanding residence times

Jock Young and Andy Revill

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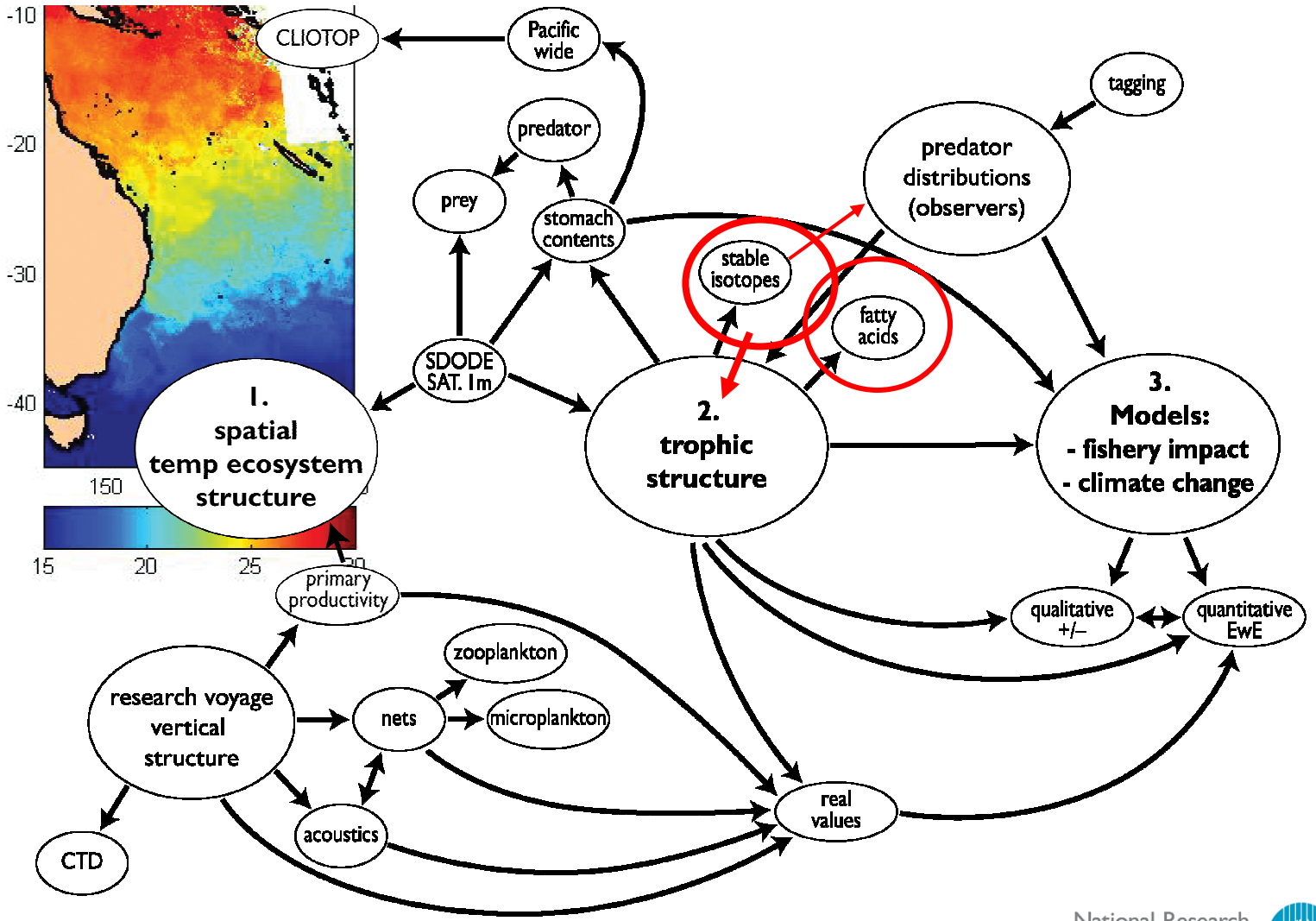
Link to ETBF study



Stable isotope analysis

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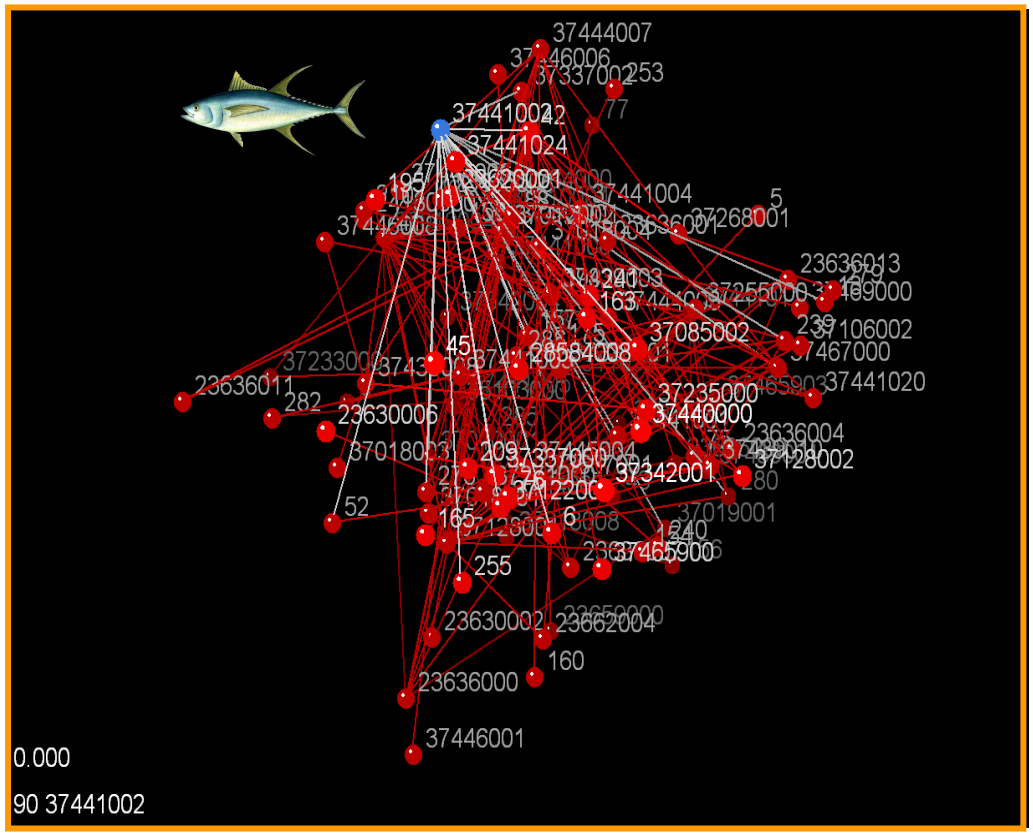
Background

- Trophic studies traditionally underpinned by stomach content analysis (SCA)
- Although essential to understanding trophic dynamics, time consuming and labour intensive
- Need for measures by which a predator/prey can be positioned within food web
- Need for understanding of stock structure, particularly for species that are difficult to tag, e.g. swordfish and albacore tuna



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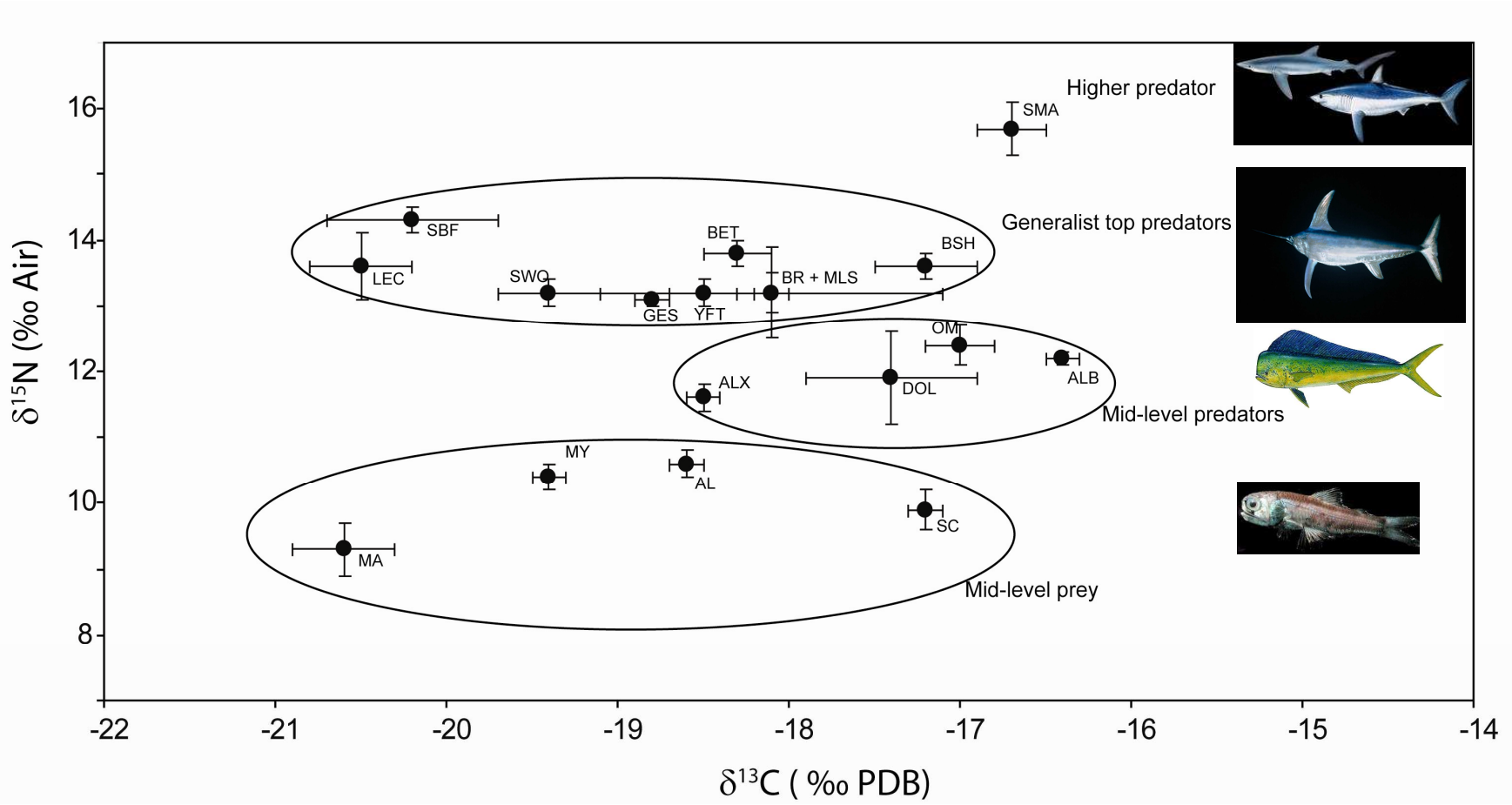
Trophic level groupings from SIA off eastern Australia



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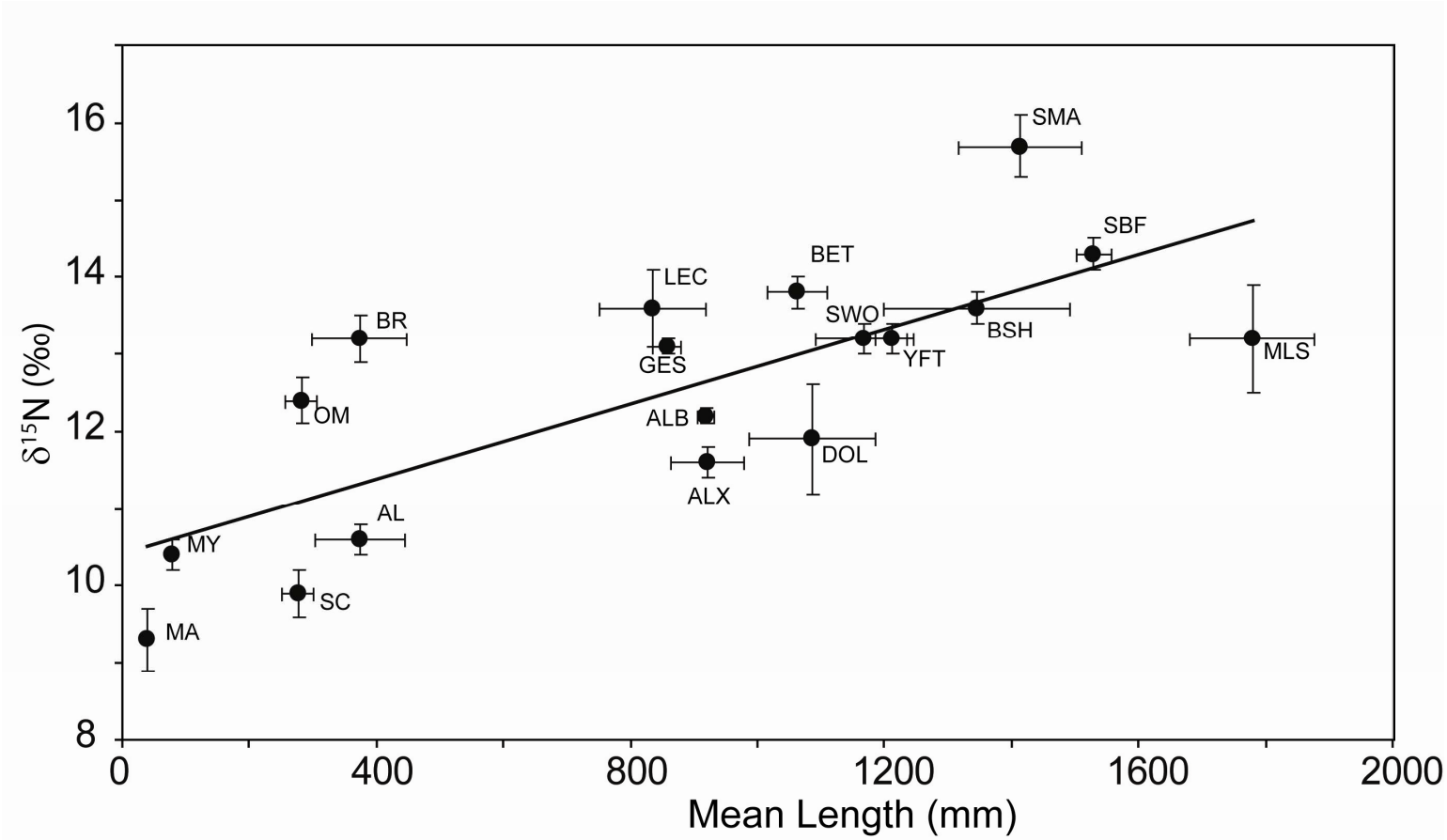
SIA and predator size off eastern Australia (1)



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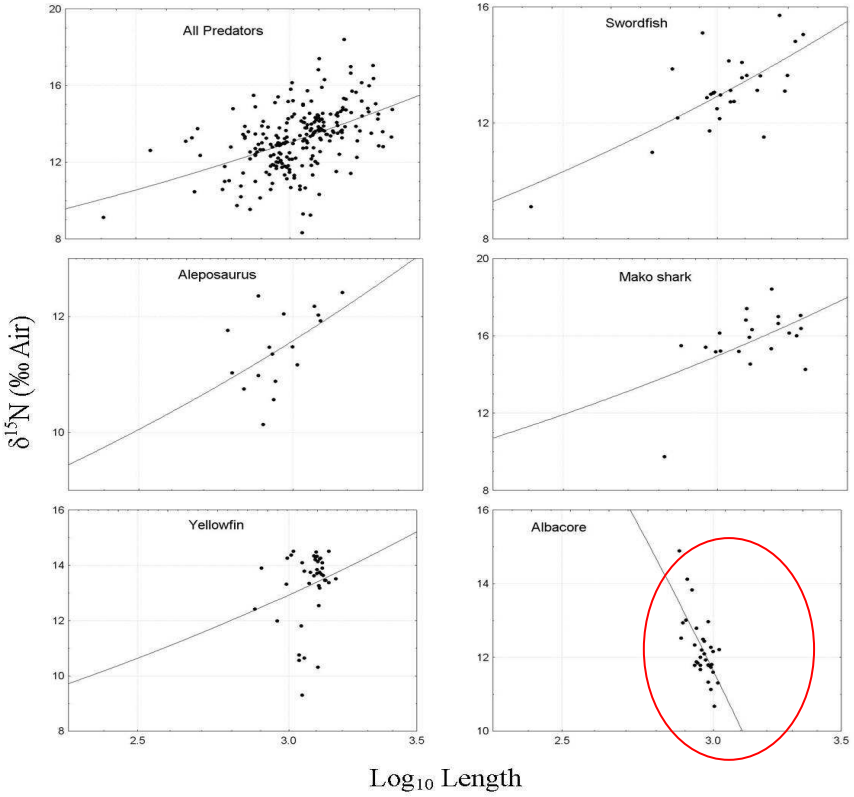
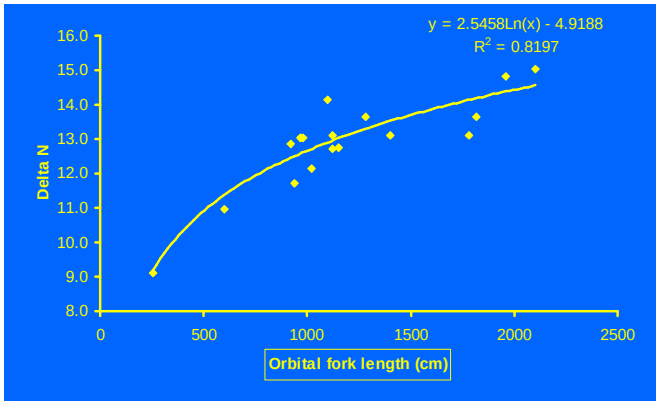
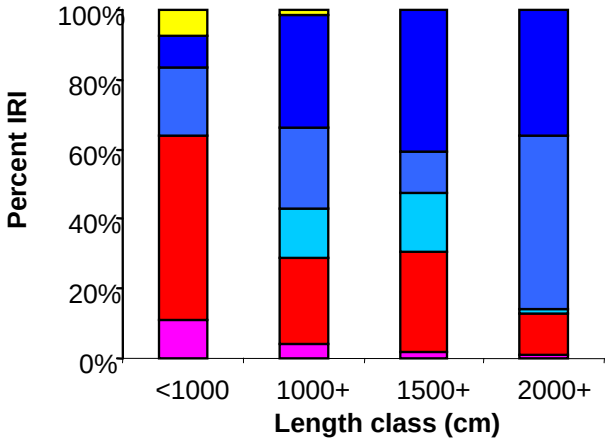
SIA and predator size off eastern Australia (2)



•Positive relationship bw length and DN15





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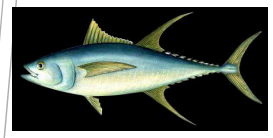
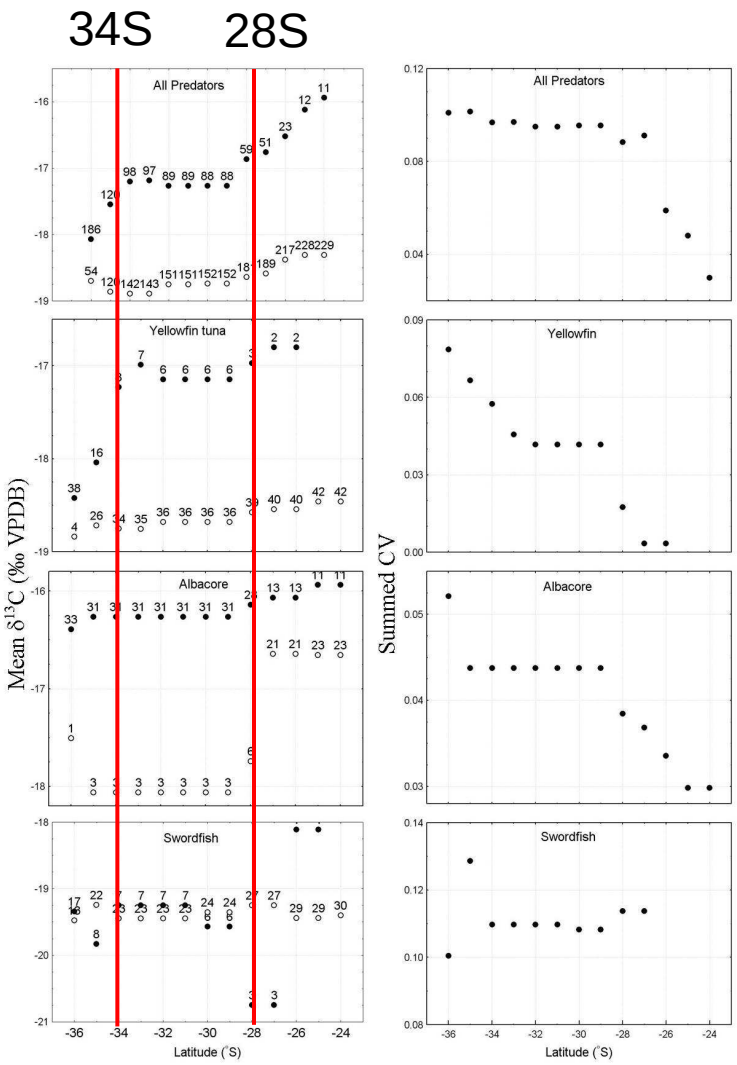
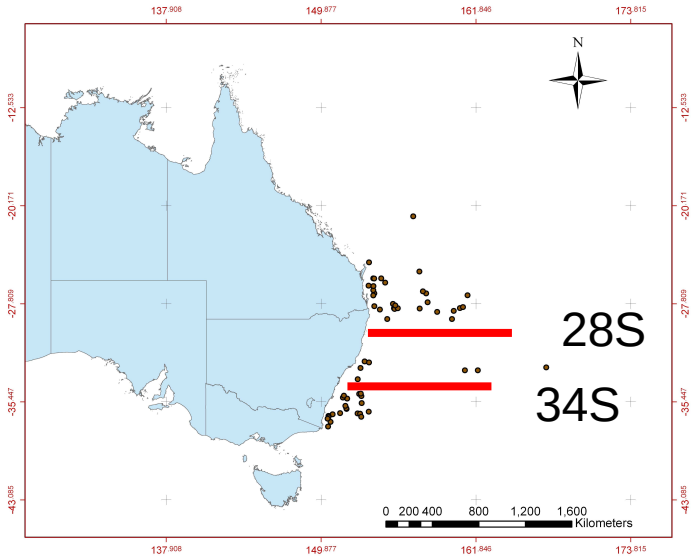
SIA and residency of pelagic predators







Graham et al 2006 –turnover time of N15 in white muscle tissue ~90 days

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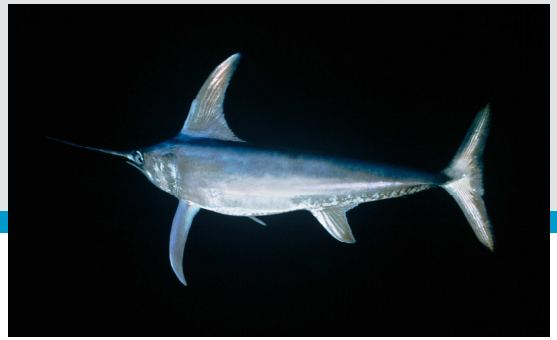
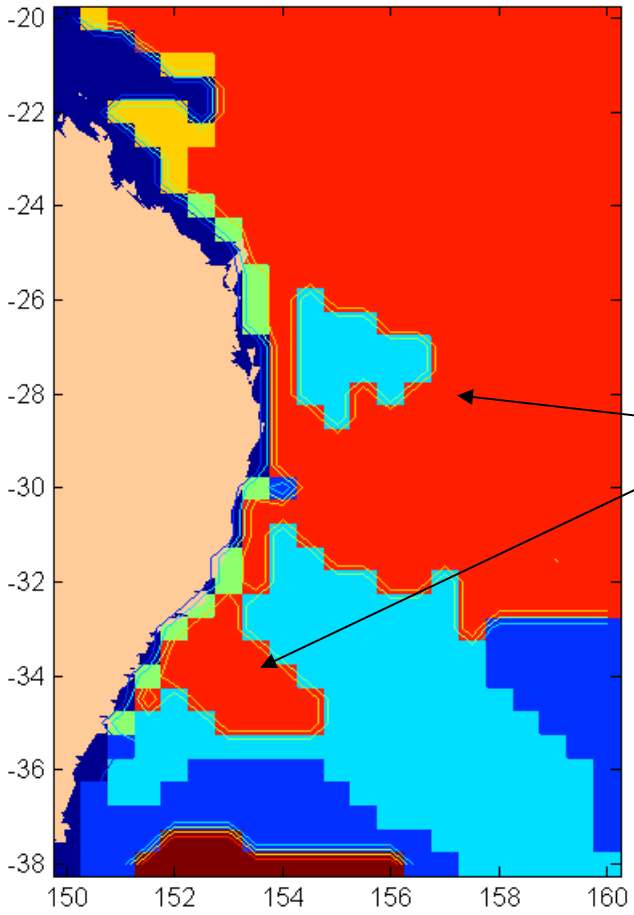
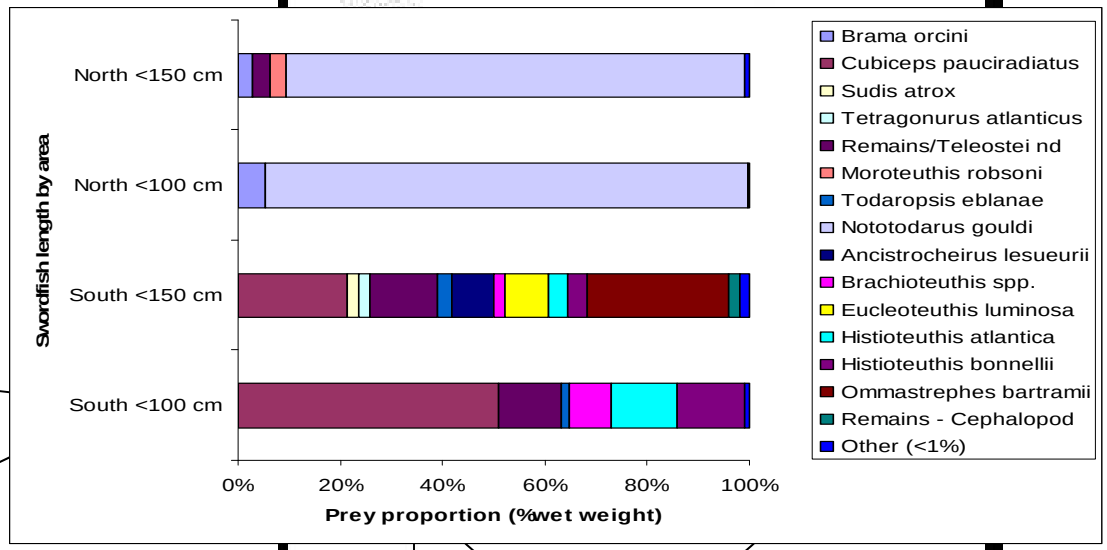
Using stable isotopes to differentiate ecosystems







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Summary

Future directions

•Need for fisheries related projects that can deliver better

•understanding of stock discrimination

•Albacore study – joint project to examine isotope variability in south west Pacific albacore with SPC, CSIRO and New Zealand

Samples collection has begun –as yet no funds to analyse them