

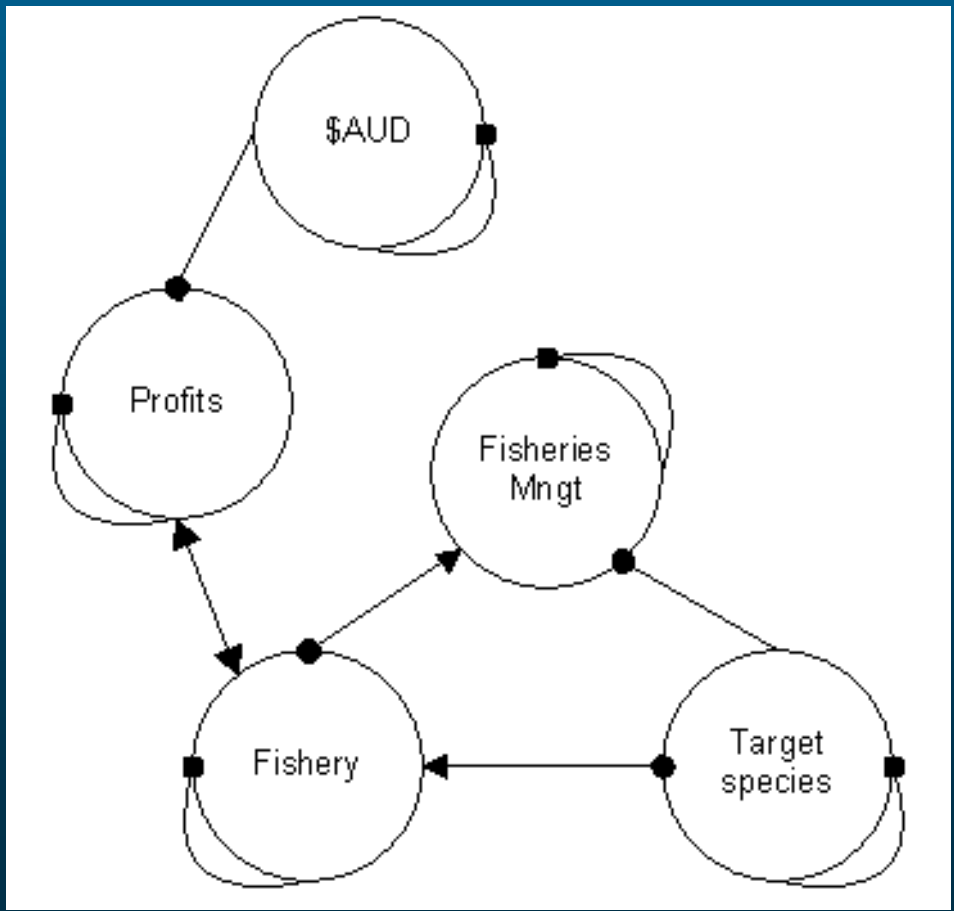
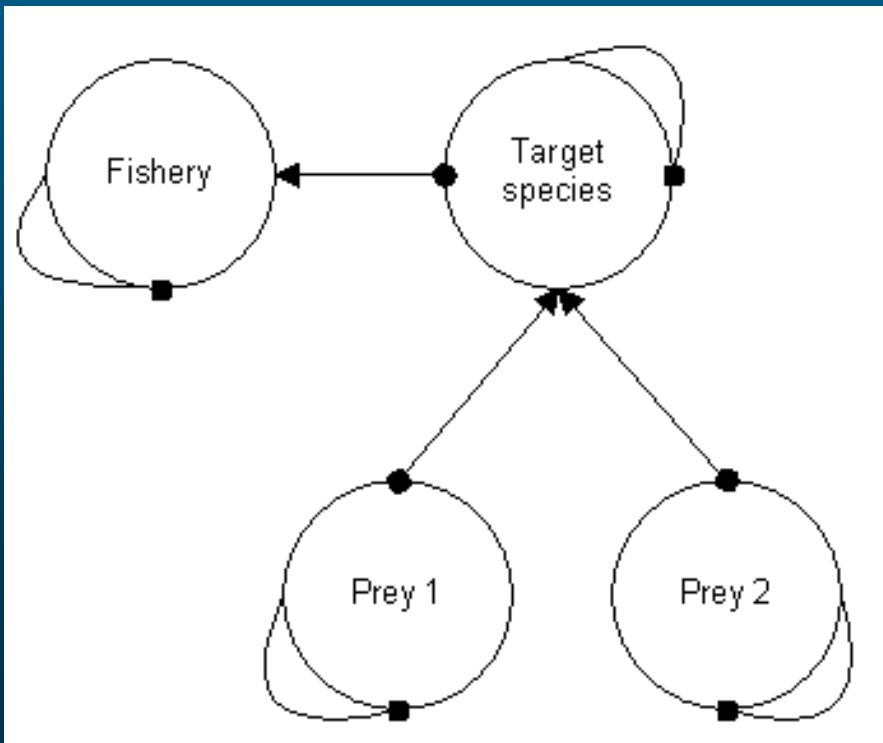
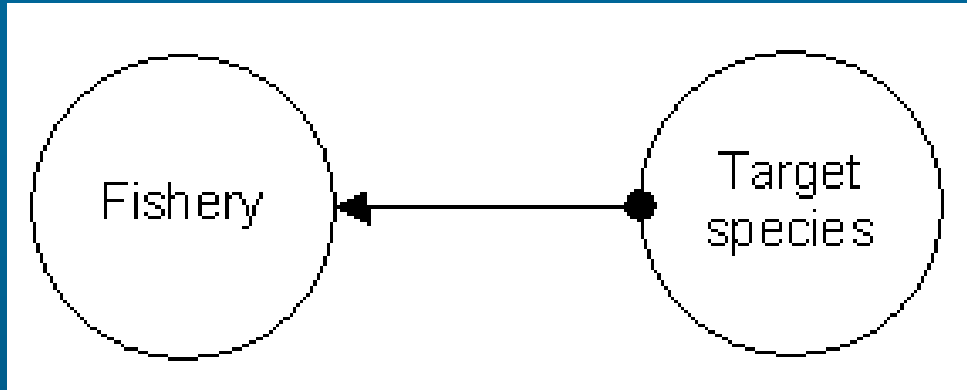
Node 4.3 Deepwater rock lobster trophic model

S. Metcalf, L. Bellchambers, M. Pember

4.3.1a Aim and expected outcomes

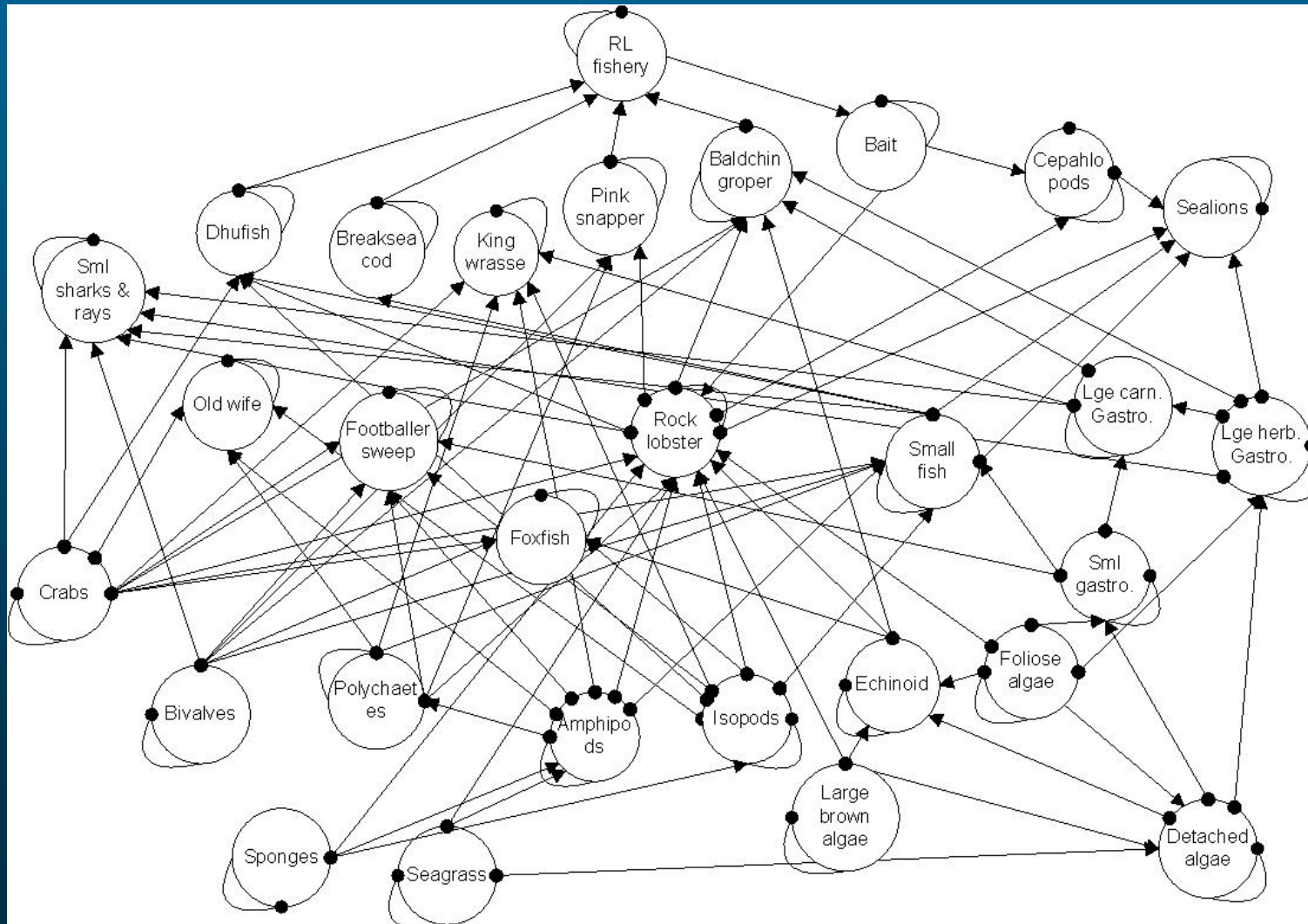
- Construct trophic web for deepwater (rock lobster) ecosystem off Jurien Bay
- Identify potential indicators for change in fishing pressure – measure impact of fishing on ecosystem

Qualitative modelling – formally identify indicators through sensitivity of variables to interactions of interest



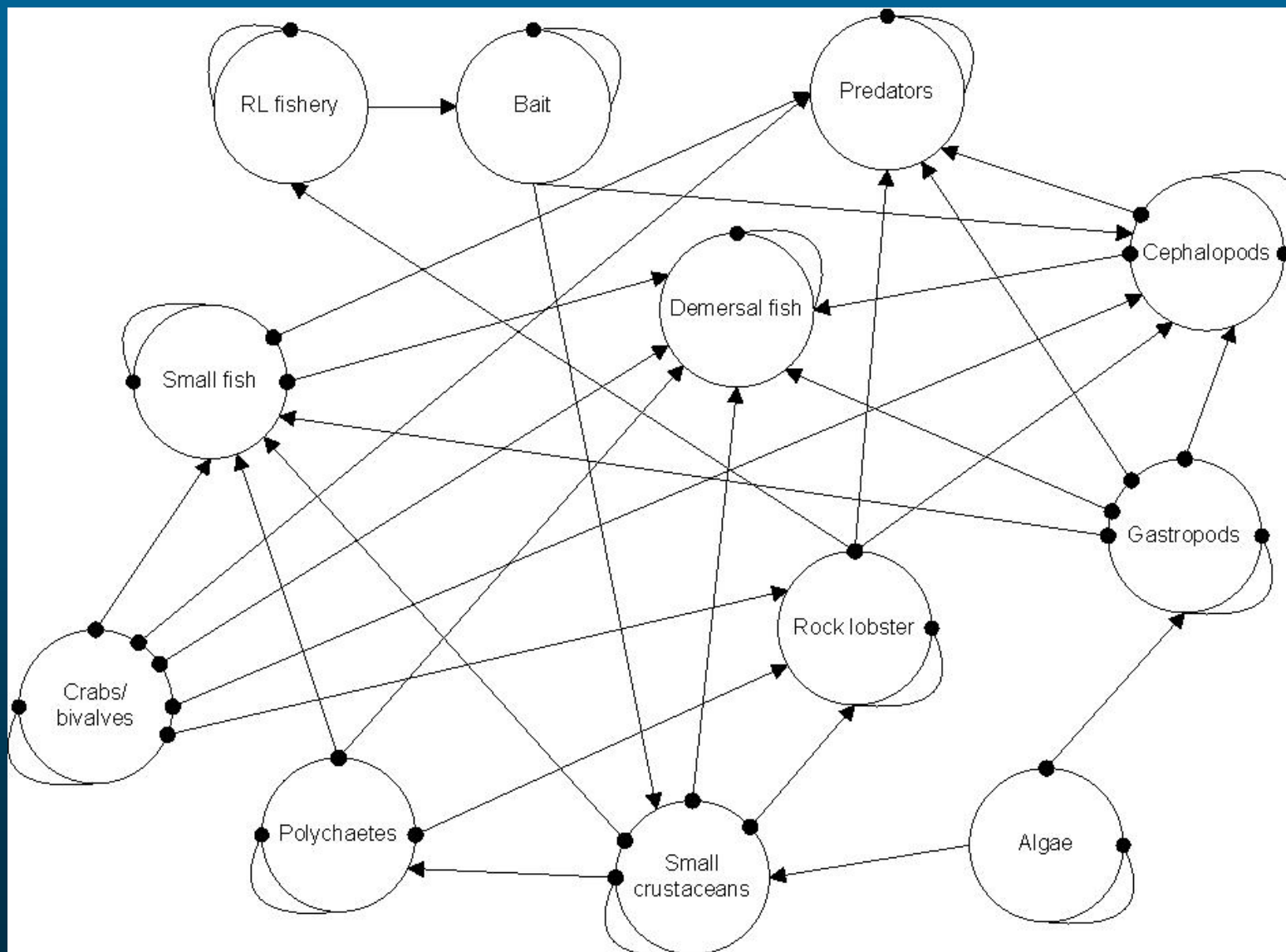
Qualitative trophic models

Constructed detailed preliminary models- simplified by removing weak links and aggregating 'like' variables



Qualitative trophic models

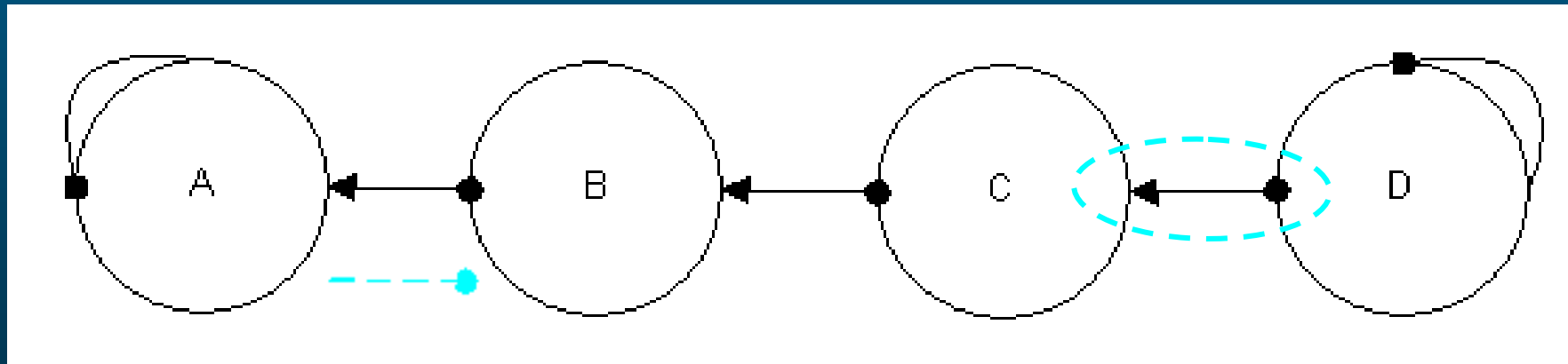
Simplified
deepwater
rock
lobster
trophic
model



Identification of indicators

Determine which variables are most sensitive to change in a specific direct effect (i.e. impact of fishery on rock lobster populations)

1) Identify feedback cycles involving interaction of interest for all variables



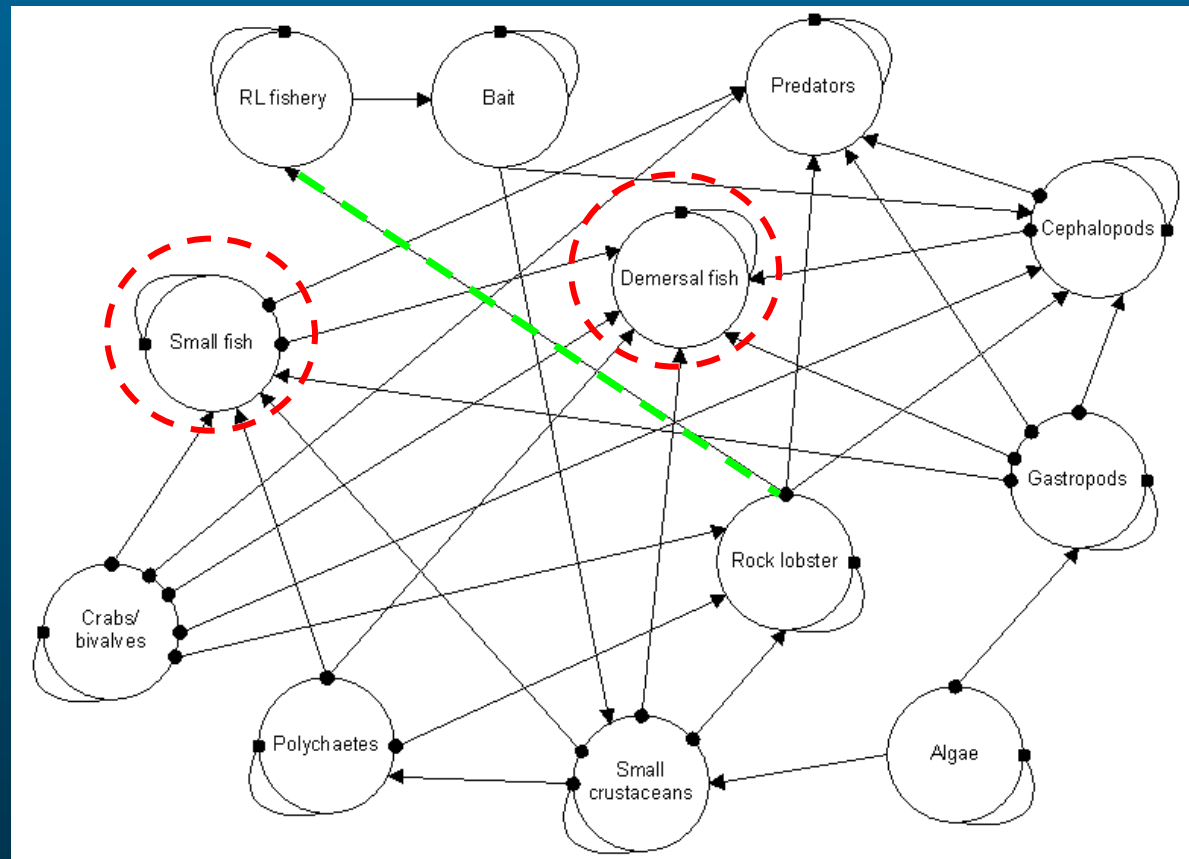
2) Variable with highest net : total feedbacks (including interaction of interest) - highest sensitivity

Identification of indicators

Preliminary
analyses undertaken

- Demersal fish
(baldchin groper,
pink snapper etc.)

- Small fish
(old wife,
foxfish etc.)



Use for management and further investigation

Rock lobster model

Good indicators of change in rock lobster fishing??

- Easy to measure/collect data?
- (Sub-model) Assess which species/group within 'demersal fish' and 'small fish' may be more useful as an indicator

Cost-effective, long-term method of prioritising data collection/funds