Qualitative analysis of fisher response to management strategies and the impacts on recreationally important fish species in WA

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Demersal fish and fishing

- West Coast Bioregion & metropolitan zone - concern for demersal fish populations
  - Commercial wetline fishery banned in metro. zone
  - Metropolitan zone - high recreational fishing effort
Recreational fishing models

Seasonal closure (metro. zone) currently in consideration

Potential alterations in fisher behaviour:

- Increased effort for other target species/fishing methods;
- Shift fishing effort outside the metro. zone;
- Increased participation in alternative pastimes.

Overall impact on fish populations in the West Coast Bioregion?
Qualitative modelling

- Few data required (+, -, 0) useful in data limited situations
• The community matrix details direct effects

• adj. \((-A)\) details both direct and indirect effects of a press perturbation on species abundance
Qualitative recreational fishing model

- Model to capture all potential changes in fisher behaviour
- Simple → complex
Qualitative ‘core’ model
Core model prediction matrix

Ambiguity involved in some predictions

3. Reduction in fishing targets of fisheries
Similar results obtained with more complex model structure

Following an increase in management:

• Reductions in most fishing types (nearshore, inshore and shore-based) were predicted
  • Fishing elsewhere predicted to increase
  • Reductions in all species excluding the species protected by seasonal closure were predicted
Conclusions

• Species protected by seasonal closure likely to increase in abundance due to management

• Switching behaviour and fishing ‘spikes’ after the re-opening likely to lead to decline in other species

Additional management strategies may be necessary to combat increased pressure on alternative species (e.g. herring) and fishing outside metro. zone

Fisher behavioural data - determine the effectiveness of management strategies
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