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Node 4: Sustainable Marine Ecosystems

Ecologically sustainable development for the marine state's fisheries Implementing Ecosystem Based Fisheries Management

8.45am – 6pm Monday 2 November 2009

Western Australian Fisheries and Marine Research Laboratories
First floor, Department of Fisheries, 39 Northside Drive, Hillarys

The Western Australian Marine Science Institution's 16 projects into sustainable marine ecosystems, covering fisheries (Node 4) have spearheaded WA research into fisheries and ecosystem management.

Research findings will be presented at a symposium at the WA Fisheries and Marine Research Laboratories at Hillarys Marina, on 2 November 2009.

Several sub-projects are heading towards finalisation. More details on each project, as presented at the recent WAMSI Science Reviews, are listed below.



RSVP by Thursday 29 October 2009 to

Selina Cranley: Selina.Cranley@fish.wa.gov.au

RESEARCH

4.1 Applying the EBFM framework

Project Leader: Dan Gaughan (DoF)

This project is on track and delivering the intended outputs. It has been successful in developing the EBFM framework for the West Coast bioregion through extensive consultation with stakeholders. It has also developed the methods to distill from the highly complex set of ecological, social and economic issues identified at a regional level, the key elements that can be used by management at a practical level. The qualitative modelling undertaken has provided the tools to assess the linkages across the various components of EBFM and capture how stably such systems are likely to perform. A report on conceptual modelling is now in-press as a Department of Fisheries Research Report, after which the scientific peer-reviewed publications will be produced. A manuscript on qualitative modelling and the use of indicators has been developed, and our Post-doctoral Research Fellow has collaborated on a publication on changes in recreational fishing behaviour as a result of management changes with a representative from Recfishwest. The EBFM framework has been adopted by the Department of Fisheries as the basis for its Risk Register. A

4.3 Trophic interactions and ecosystem modelling

Project Leader: Neil Loneragan (MU)

4.3.1a Trophic Interactions (L. Bellchambers DoF)

4.3.1b Food Webs (D. Gaughan DoF)

4.3.2 Ecosystem Modelling (N. Hall MU)

This project and its various sub-projects are well under way and on track. One sub-project, examining the fishing impacts of rock lobster on the ecosystem, has already identified potential study areas, completed preliminary sampling and obtained significant FRDC funding to undertake formal sampling. The sub-projects developing models for various estuarine systems are currently underway using both quantitative and qualitative approaches. Major outcomes to date include progress of field work in deep and shallow waters and the development of models for demersal food webs and progress in feeding and assimilation studies and quantitative models for the Peel-Harvey estuary.

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presentation on the biodiversity of aquatic ecosystems was also delivered at the recent Australian Society for Fish Biologists Workshop/Eighth Indo-Pacific Fish Conference in Fremantle in June.

4.2 Assessment of marine communities and the impact of anthropogenic influences

Project Leader: Euan Harvey (UWA)

4.2.1 Development of bioregional level assessments of the status of community structure based on fishery-dependent and/or fishery-independent data (Norm Hall MU)

4.2.2 Establishment of Indicator regions for long-term monitoring and assessment (E. Harvey UWA)

4.2.3 Establishment of fishery-dependent indicators of climate change (N. Caputi DoF)

4.2.4 Cost effective ongoing, general biodiversity and habitat monitoring methods (E. Harvey UWA)

This project and its various sub-projects are under way and on track. It has already produced some useful outcomes based on the analysis of existing fishery and non-fishery data. One sub-project examined how fishery catch data can be used to assess community structure in the West Coast bioregion. This showed no evidence of long-term trends. Another has identified and compiled all relevant marine environmental data for WA. This proved invaluable for use in the risk assessment that examined potential causes of the very low rock lobster puerulus settlement for the past season. The work on potential fishery independent methods of measuring community structure and habitats is now progressing. A number of project-related presentations were delivered at the recent Australian Society for Fish Biologists Workshop/Eighth Indo-Pacific Fish Conference in Fremantle in June.

4.4 Captured species assessments

Project Leader: Brett Molony (DoF)

4.4.1 Assessment and Monitoring of Bycatch (R. Evans DoF)

4.4.2 Stock Structure (G. Jackson DoF; Phillip England CSIRO; Jennie Chaplin MU)

4.4.3 Monitoring Catch of Non-commercial Sector (B. Wise DoF)

This project and its various sub-projects are under way and on track. Work on the sub-project examining the stock structure of key west coast demersal species using genetic microchemistry and oceanographic techniques is progressing well. The study on bycatch issues has just begun. Unfortunately, the sub-project on developing more cost efficient estimation methods for non-commercial (recreational) catches has been hampered because of lack of data on boat owners. One peer-reviewed paper is in-press and a number of project-related presentations were delivered at the recent Australian Society for Fish Biologists Workshop/Eighth Indo-Pacific Fish Conference in Fremantle in June. Of relevance to fisheries management so far is the dhufish management question which will be at least partially answered by the end of the year.

4.5 Socio-economic implications

Project Leader: Malcolm Tull (MU)

4.5.1 A review of the methods for completing social and economic assessments for use in EBFM (J. Shaw DoF)

4.5.2 Modelling recreational fishing behaviour (P. McLeod UWA)

4.5.3 Pilot Study to develop a socio-economic assessment of fisheries (commercial and recreational) in the West Coast bioregion. (M. Tull MU)

This project has begun, with sub-project 4.5.1 already finalised. In collaboration with Project 4.1, a review and analysis of methods for undertaking social and economic assessments to answer different management questions has been published. This review includes information from the literature and experiences of practitioners and is generating substantial interest. The sub-projects on recreational fisher behaviour and a case study of management impacts have begun.



Government of Western Australia
Department of Fisheries



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