Predicting Common Banana Prawn Potential Catch in Australia’s Northern Prawn Fishery

Rik Buckworth*, Emma Lawrence2, Bill Venables2, Peter Rothlisberg1, Trevor Hutton1, and Fiona Hill3

1CSIRO, Marine & Atmospheric Research, Brisbane, Qld, Australia
2CSIRO, Mathematics, Informatics and Statistics, Brisbane, Qld, Australia
3Australian Fisheries Management Authority, Canberra, ACT, Australia

The Northern Prawn Fishery, like other Commonwealth-managed fisheries, is subject to a general policy of management by output controls. To determine appropriate Total Allowable Catch limits in this fishery, management requires a timely, reliable estimate of the potential catch of Common Banana Prawn, *Penaeus merguiensis*. Banana prawns are a resilient species that seem to recover quickly under current harvesting levels. To date, traditional stock-assessment methods have not been successful, possibly due to the animal’s unusual life cycle and resilience and so currently no stock-assessment estimate of abundance is available. As the species appears to be strongly affected by environmental drivers, we investigated the use of rainfall data and the annual recruitment monitoring index to develop an empirical predictor for the potential catch. In this talk we will outline the robust statistical methods used to estimate the annual Common Banana Prawn potential catch at the Stock Region and overall fishery level. Finally we assess the reliability of the process using a retrospective analysis, together with other, more conventional uncertainty estimates.