



Northern  
Territory  
Government

# A collaborative recruitment forecasting programme for the Northern Territory Mud Crab Fishery



Figure 1: Li-Anthawirriyara Sea Ranger vessel on the McArthur River.

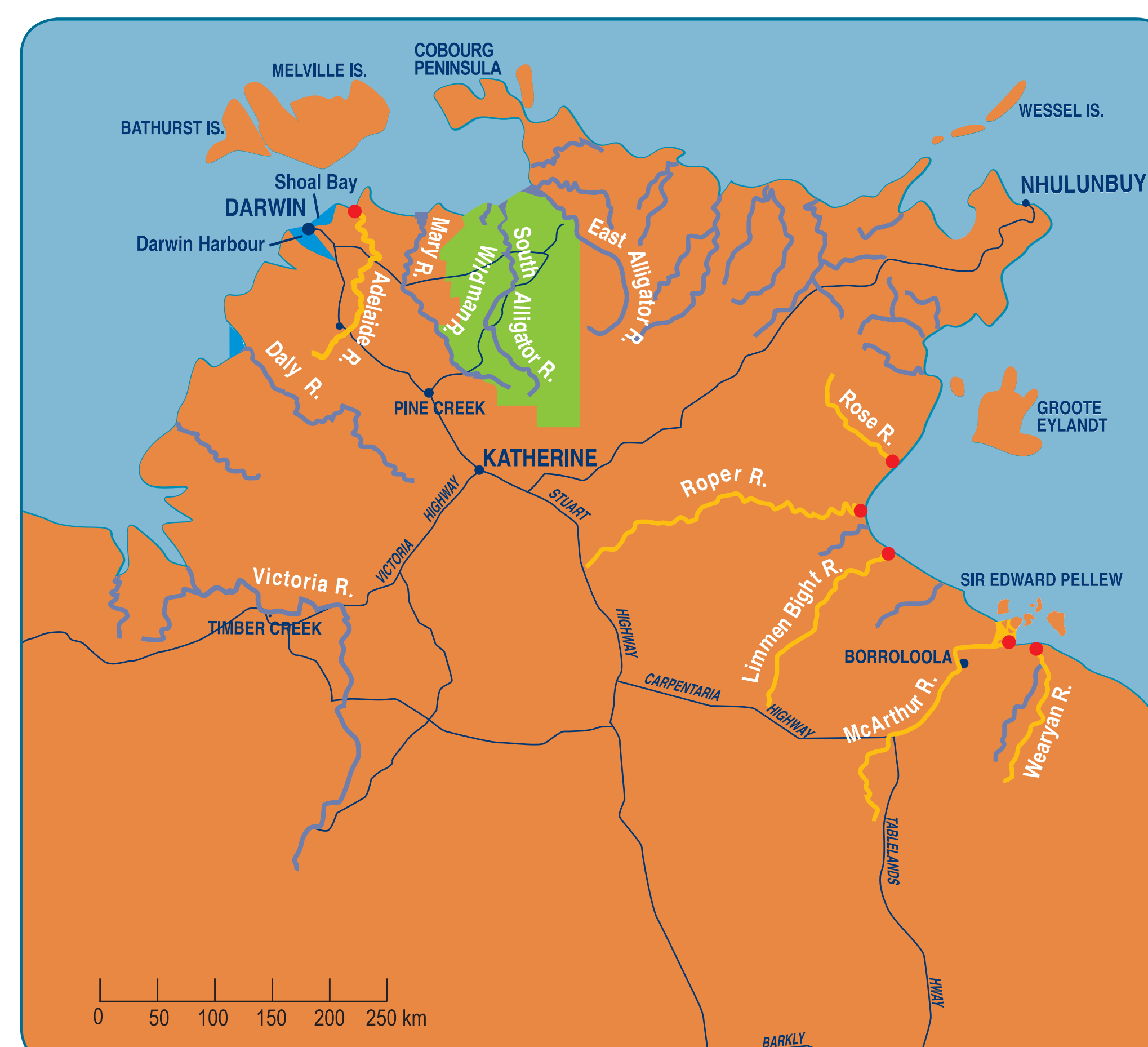


Figure 2: Northern Territory coastline with river systems being monitored highlighted in yellow.



Figure 3: Numberindi Sea Ranger vessel on the Rose River.



Figure 4: Experimental pot.



Figure 5: Sub-adult mud crab (*Scylla serrata*) on 25 x 25 mm checkerboard background.

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A collaborative research project involving the Northern Territory Seafood Council, the Fisheries Group of the Department of Regional Development, Primary Industry, Fisheries and Resources, the Northern Territory Crab Fishermen's Association and the Numberindi and Li-Anthawirriyara Sea Ranger Groups began in August 2008 in the Northern Territory, Australia.

The two year study is funded through a National Landcare Program Sustainable Practices Grant. The aim of the work is to collect information on when and where juvenile mud crabs are found and describe potential links between juvenile abundance and the subsequent commercial harvest of mud crabs. The areas to be monitored include the Adelaide River near Darwin and the Limmen Bight, McArthur, Roper, Rose and Wearyan Rivers in the Gulf of Carpentaria (Figure 2).

During September and November 2008, Fisheries Group staff, in conjunction with Chris Calogeras (C-AID Consultants), conducted training workshops for several commercial crabbers and both Sea Ranger Groups at Numbulwar and Borroloola, respectively. Where necessary, these workshops covered how best to set and retrieve crab pots, mud crab handling techniques as well as data recording and reporting protocols. Commercial fishers on the Adelaide and Wearyan Rivers have also received project advice and support from the Fisheries Group.

By December 2008, each participant (or group) had been issued with a number of purpose-built experimental pots and a scientific permit to use non-standard pots. The experimental pots are based on commercial crab pots but are wrapped in a smaller, finer mesh (Figure 4). Two entry funnels are built from a v-shaped section of rigid wire mesh wrapped in shade cloth. Shade cloth is used to prevent the fine legs of juvenile crabs from falling through the gaps in the wire mesh. Larger crabs are physically blocked from entering the pots as the funnel opening is only 25 mm high.

Three to five pots have been grouped in several locations within each monitoring area (e.g. near salt pans, mangroves and mud flats) and are checked at least two to three times per week. Crabs captured are emptied into a plastic tray which has a 25 mm checkerboard pattern applied to the inner surface for calibration purposes (Figure 5). Once photographs of the catch have been taken (using water-proof digital cameras), the crabs are released. Images are returned to Darwin each month for crab size estimation using image analysis software.

At the completion of the project, the data collected will be used to identify patterns in juvenile crab abundance in each area. This information will then be compared with the commercial harvest. If trends in juvenile and adult (i.e. commercial) catches are similar, then the survey method may enable fishers to predict the relative size of their catch 6 to 9 months in advance. Such a forecasting tool may also allow crabbers to scale their operations to the predicted catch.



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