CMI Land Grant Aquaculture Research Program achieves breakthrough in producing baby horned helmet shells (*Cassis cornuta*)

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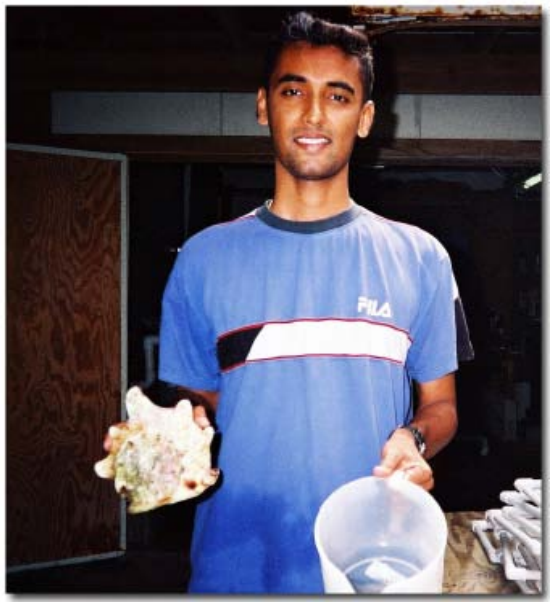
The Aquaculture Research Program of the College of the Marshall Islands (CMI) recently achieved a breakthrough. The programme closed the life cycle of the edible and ornamental gastropod mollusc *Cassis cornuta*, commonly called horned helmet shell and known locally as *bok bok* in Marshallese. Two female and one male *bok bok* were kept at CMI's Arrak Research facility as exhibit specimens for young school students who visit the campus. The females spawned naturally and produced an egg mass in the form of capsules. Project scientists Dr Manoj Nair and Rand Dybdahl encouraged the Marshallese staff trainees to hatch these eggs and rear the larvae at the Land Grant Arrak experimental blacklip pearl oyster hatchery until they settle and become small helmet shells (about two month's time). Dr Nair and Mr Dybdahl provided technical input and minimal supervision, leaving the project under the leadership of Land Grant Aquaculture Research Aide Tabwi Aine.

Around 30 per cent of the 80,000 eggs (40,000 from two separate spawnings by the two different females) became larvae that settled inside the tanks. The settled larvae were thinned out and a few hundred juveniles are being kept in the outdoor circular tanks to observe their growth.

The significance of the breakthrough is that it is the first time this species has been reared to a juvenile stage in the Pacific region and, possibly, worldwide. This is also the first time that a gastropod species has been reared successfully at the Marshall Islands' research hatchery. This information could be useful in future stock enhancement programmes in the country for this species and other shellfish species such as cowries and triton shells, which are valued and being overfished for their shells. Moreover, there may even be a market in the marine ornamental trade industry for small horned helmet shells.



Dr Manoj Nair (Land Grant research scientist) presenting a helmet shell spawner with freshly produced eggs in pitcher

Group photo of project staff and trainees holding a spawned helmet shell in front of the Arrak hatchery. From left to right: Tanney Smart (trainee), Dr Manoj Nair (Land Grant research scientist), Charles Isiah (trainee), Jude Allen Anjan (RALGOV trainee), Tabwi Aine (Land Grant research aide) and Rand Dybdahl (Land Grant/ CTSA research scientist)

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The project team's next challenge will be to maintain, breed and produce juvenile triton shells, *Charonia* sp. This could be attempted when the hatchery is not busy producing valuable blacklip pearl oyster spat for the commercial pearling industry in the Marshall Islands.

Project staff are thankful for the encouragement of CMI President Dr Wayne Schmidt and Mrs Diane Myazoe Dean, from the CMI Land Grant Cooperative Research & Extension Program, and Coordinator of USDA CTSA program at CMI's Arrak Campus near Laura. Project staff acknowledge the support of the Mayor of Rongelap Atoll Local Government (RALGOV) Mr James Matayoshi for his support of the research programme. The staff are also grateful to Mr Don Hess and Dr Dean Jacobson of CMI's Liberal Arts and Marine Science Program for funding (from the Minority Serving Institution Grant) project staff, and photographing the different larval stages.

Helmet shell spawner with freshly produced eggs in pitcher

Swimming helmet shell larvae

Newly settled helmet shell juvenile

Three-month old juveniles