

Fisheries managers worldwide are striving to reduce the impact of fishing gear on the environment because catching methods that damage or destroy habitats and non-target species reduce the capacity of the ecosystem to provide future harvests. Collection of fish from coral reefs for the live fish food market and the marine aquarium trade has received particular attention. In some parts of the world, a solution of sodium cyanide is used to stun the fish to make them easy to catch – a technique which results in two forms of damage: dismantling of reefs to remove the stunned fish from crevices, and death of coral and invertebrates due to poisoning by cyanide. Several NGOs have now taught fishing communities to catch coral reef fish with hand-held nets to avoid these problems. Even so, some damage to the reef still occurs as the divers often bump and break coral accidentally, not to mention the temptation to dislodge coral heads to extract the small fish that seek shelter among the branches.

The paper by Watson et al. in this issue describes simple equipment to bring a new method for collecting juvenile fish for the marine aquarium trade within reach of coastal fishing communities. By deploying light traps just below the surface, many species of coral reef fish can be caught above the reef as small juveniles when they settle to the substrate at the end of the pelagic larval phase. The only disadvantage of this method is that the fish are often too small to sell and must be reared for several weeks until they reach market size. This disadvantage is offset by the higher prices likely to be received in recognition of the environmentally friendly collection method, and because the fish are already accustomed to being fed in captivity. The costs of growing the fish can be kept to a minimum by holding them in small, fine-meshed cages placed in sheltered marine locations close to fishing villages.

Reducing the risk of damaging the reef is not the only interesting feature of a fishery for postlarval coral reef species. It also changes a longstanding paradigm of fishing - here the focus is on catching the juveniles, rather than releasing them and keeping the adults. This change in approach has occurred because several studies have now shown that >90% of postlarval coral reef fish and invertebrates settling from the plankton fail to survive their first benthic year due to heavy predation. Conversely, survival of the collected juveniles in captivity can be as high as 90% after two years (in the case of spiny lobsters reared in Vietnam). Such high rates of survival make the capture and culture of postlarvae an attractive option for increasing the productivity. Conflict with fishers dependent on the adult wild stock for their livelihood can be avoided by legislating for farmers to return sufficient wild-caught juveniles to the sea, once they have reached a more robust size, to compensate for the numbers estimated to survive the settlement process. The remainder represent additional productivity.

A word of caution, however. The capture and culture of juveniles should only be considered for those species where the young animals can be caught before they suffer the massive natural mortality usually associated with settlement from the plankton. To catch them after this mortality has run its course would work against the aim of maximizing yield per recruit. The challenge before us is to determine how widely this new approach to fishing can be applied. To do this, we need to identify which species can be caught easily before suffering high natural mortality as juveniles, and reared in aquaculture to increase productivity in an environmentally friendly way.

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Editorial response to Dr. M. Sakthivel's letter to ICLARM regarding the NAGA editorial on Biodiversity

The editorials in NAGA occasionally receive strong reactions from readers on the topics covered. Our recent editorial on biodiversity attracted the attention of a reader, Dr. M. Sakthivel, President of Aquaculture Foundation of India, who felt that our editorial did not do justice to coastal aquaculture by claiming that "Development of coastal areas and river banks for human settlement, for industrial use, infrastructure development, mariculture and aquaculture pose major threats" to biodiversity. Dr. M. Sakthivel felt that the developed world is responsible for much of the destruction of biodiversity and that we did not give a balanced view on the impact of coastal aquaculture on social well-being and livelihood for people in the developing world. He also pointed out the agriculture is even a greater threat to biodiversity than aquaculture. We would like to iterate that we appreciate the points raised by the reader and emphasize that ICLARM - The World Fish Center has a strong focus on sustainable aquaculture development and considers fish farming as an important approach for reducing poverty. As such aquaculture is very vital for food security in developing countries and it should be developed in sustainable ways for the long-term well being of the people dependent on the coastal resources.