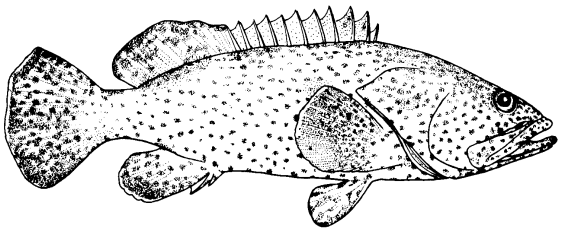
LIVE REEF FISH WORKSHOPS & MEETINGS



Workshop on the Impacts of Destructive Fishing Practices on the Marine Environment, 16–18 December 1997, Hong Kong

The Asia-Pacific Economic Cooperation (APEC) Marine Resources Conservation Working Group is convening a workshop to address the impacts of destructive fishing practices on the marine environment. The purpose is to define areas for action and regional cooperation to tackle the problem.

Suggested themes of the workshop:

- Impacts of destructive fishing practices;
- Protection of the coral reef environment;
- Promotion of environmentally friendly fishing practices; and
- Legislation, enforcement and management strategies.

Venue:

- The Hong Kong University of Science and Technology.

Organisers:

- Agriculture and Fisheries Dept., Hong Kong;
- State Oceanic Administration, The People's Republic of China; and
- Environmental Protection Administration, Chinese Taipei.

Deadlines:

- The deadline for submission of abstracts is 15 July and the deadline for early registration is 30 September 1997.

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Coral reef fish aquaculture workshop in Sabah

by R.E. Johannes

A workshop on Sustainable Aquaculture of Coral Fishes and Sustainable Reef Fisheries was held in Sabah, Malaysia on 4–8 December 1996. Sponsored by the Network of Aquaculture Centres in Asia (NACA) and collaborating agencies[1]. Its purpose was to review the status of the culture of coral reef fishes, to review the social, economic and ecological impacts of the live reef fishery and related aquaculture, to identify research, training, information and policy needs for promoting responsible aquaculture and sustainable management of reef-fish resources, to identify common problems related to reef-fish aquaculture in the Asian region, and to explore ways for regional cooperation.

[1] Institute for Development Studies (Sabah); Department of Fisheries, Sabah Malaysia; Universiti Malaysia, Sabah; and Sabah Parks.

The subjects discussed were too numerous to cover here, but some points that may be of particular interest to readers of this *Information Bulletin* are briefly discussed.

Reviews of reef fish aquaculture were presented for Thailand, Malaysia, the Philippines, Indonesia, Singapore, Hong Kong and Taiwan. Other speakers discussed disease problems, market trends and the feasibility of catching pre-settlement reef fish larvae for growout. A recurring theme among speakers from throughout the region was the shortage of juveniles. This appears to be the biggest impediment to the expansion of farming of coral reef food fish in South East Asia.

It is unlikely that hatcheries will be able to supply the demand within the near future. Whereas a long list of reef food-fish has been raised from the egg experimentally, it appears that only two species of groupers, *Epinephelus malabaricus* and *E. coioides,* can, as yet, be hatchery-raised on a commercially sustainable basis.

Despite almost two decades of research in at least 16 different countries, commercial success has proved elusive because of the fragility of grouper larvae, cannibalism, and the difficulty of obtaining suitable food for them. Mortality rates have been either uniformly high or unpredictably variable.

Even with *E. malabaricus* and *E. coioides*, larval survival rates are erratic and brood stock numbers must be very large to guarantee enough surviving fingerlings to supply even local needs. Hatcheries occasionally report larval survival of several tens of per cent, but they rarely, if ever, manage to attain such relatively high survival rates consistently.

Moreover, if mariculture is ever able to fully exploit the growing demand for reef-fish fingerlings, hatcheries will have to be able to raise far more than just two species commercially.

As long as the economic boom continues in South-East Asia, consumers of live reef food fish will continue to be willing to pay high prices for species that cannot be supplied by hatcheries, such as plectropomid groupers (coral trout) (*Plectropomus* spp.), the mousehead or panther grouper (*Cromileptes altivelis*) and the humphead, napoleon or maori wrasse (*Cheilinus undulatus*).

A recent Australian study of the feasibility of achieving commercially viable hatchery-based production of these species, which was discussed by Michael Rimmer at the workshop, rated the chances at 20 per cent for plectropomids, 15 per cent for *Cromileptes altivelis* and a mere 7.5 per cent for *Cheilinus undulatus*.

Given such unimpressive odds, as well as the slow progress of researchers in rearing many other reef fish species commercially, workshop attendees recommended that more effort should be devoted to determining how to get more juvenile reef fish sustainably from the wild.

Dr Vincent Dufour pointed out that most coral reef fish have a pelagic larval stage ending with the colonisation of the reef as juveniles. The abundance of the larvae is orders of magnitude higher than of adult fish but numbers decline sharply during settlement and colonisation, probably because of heavy predation.

Therefore, he said, 'if reef fish larvae could be harvested before settlement, their abundance would probably allow sustainable farming techniques and the juvenile and adult coral reef population would be preserved.'

Grouper fry and juveniles are imported to South-East Asian countries from as far away as Sri Lanka, which exports its entire catch (over a million individuals in some years) because it does not, as yet, farm groupers. Some countries with their own grouper growout industries have banned, or are planning to ban the export of grouper fry. One province in the region is planning on an experimental basis to introduce a closed season for grouper fry collection and limit the fishery to licensed residents in order to see if this will result in larger sustained catches. A ban on the export of government hatchery-produced fry in Taiwan was lifted in 1996 because of production excess to the country's needs.

Mr Sudari of INFOFISH estimated the live reef-fish trade had more than doubled in the past five years and that this rapid growth was expected to continue.

Unfortunately there was no representative of the People's Republic of China (PRC) at the workshop, although one had been invited. The PRC is expected to overtake Hong Kong soon to become the world's largest importer of live reef food fish (Johannes & Riepen, 1995). Moreover, the domestic PRC production of farmed grouper in 1990 (the latest figure I have been able to locate) is said to have been 43,000 t. This is greater, even today, than the farm production of grouper of all other countries in the region combined. Clearly China is an immense player in this arena, and until we have a basic understanding of its operations, we will be unable to formulate a reliable regional overview of the live reef food-fish industry. To this end it would be very useful to hold a future workshop on the live reef fish trade in China.

The proceedings of the Sabah workshop are scheduled for publication early in 1997. This publication should prove invaluable to anyone interested in the live reef fish industry. For more information contact Mr. Rooney Biusing, Fisheries Research Center, 89400 Likas, Kota Kinabalu, Sabah, Malaysia. Fax (06) 088 425890; e-mail: biusing@ppps.po.my

References

Johannes, R.E. & M. Riepen. (1995). Environmental, economic and social implications of the live reef fish trade in Asia and the Western Pacific. Report to The Nature Conservancy and the Forum Fisheries Agency. 83 p.