

## Lessons learnt

Our trials show that the breeding and rearing of magur (*Clarias batrachus*) can be achieved at the village level condition using a simple low-cost technology. Since it is a small-scale unit a greater number of farmers can adopt the technology for producing the seed as per requirement. The following lessons were learnt during the magur seed production trials.

1. The condition of brood fish must be excellent and over 100 g in weight.
2. Water quality plays an important role in hatching and survival of magur seed. Water temperature over 33 C. and water pH over 8.0 lead to reduced development and survival of eggs and larvae.
3. Addition of aeration facilities, and prompt removal of eggshells and debris would likely improve survival by preventing the deterioration of water quality.
4. The survival of larvae can be increased if boiled egg yolk and adequate densities of live food are provided.

The simple technique thus developed under this study can easily be adopted by farmers and this would help in meeting the growing demand for seeds of magur fish to some extent.

## Acknowledgement

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## Further reading

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# What's New in Aquaculture

## Vietnamese Trading Centre Opens

In the past local shrimp farmers of Can Gio region of Vietnam have had difficulty in selling their product, there were simply too many sellers and too few buyers. As a measure to alleviate this situation the Can Gio Fisheries Trading Centre has been opened in Ho Chi Minh City.

In its initial session in April, 14 farmers accounting for 16.9 tonnes of supgo shrimp have enlisted at the trading centre. The opening of the centre is a direct response to the demands of local shrimp producers for a well-organised trading centre. By May 27 shrimp farmers had registered to sell 74.3 tonnes

The center currently comprises of transaction offices, markets and booths for trading. Cholimex, the company responsible for its construction plans ice production and freezing stores for a second stage.

In addition to its trading function the center will also serve as a source of information regarding prices and demand for shrimp, breeding techniques, feed and veterinary medicines, loans and transport services. (Source: *Saigon Times Daily*, April 23, 2002, *Saigon Times Daily*, May 14, 2002; *Asia Pulse Pte Ltd*, May 28, 2002, Tuesday).

## Thai Prawn Farmers address the EU ban

In Thailand, the Surat Thani Prawn Farmers Club in association with Thai Prawn Raisers Association is implementing chemical free treatment programmes. Black tiger prawn farmers have stopped using antibiotic chemicals in response to the EU banning of shipments containing excessive amounts. In addition prawn farmers have rehabilitated mangrove forests by reducing the use of these antibiotics and discharge of wastewater into the sea. 300 members have contributed to a laboratory where prawn fry can be screened for disease prior to release. The organisation is campaigning to correct the misunderstanding that prawn farming is environmentally degrading. Mangrove forests along the coasts of Chumphon and Surat Thani have recovered and prawn farms have moved inland allowing

mangrove recovery to take place. Organic shrimp farming is also making an appearance. (Source: *Bangkok Post* May 6th, 2002).

## Hazard analysis vital for US fish exports

At a workshop at the Saigon Times Club on May 13th the director of International Seafood Quality Assurance of Surefish relayed the importance of obtaining a Hazard Analysis and Critical Control Point certificate (HACCP) in order for fish processors to export fish to the US. The meeting hosted by Surefish and the Vietnam Association of Seafood Export Processors (Vasep) discussed aspects of food safety management with reference to the US Food and Drug Administration (FDA). (Source: *The Saigon Times Daily*, May 14, 2002).

## CP reorganizes in China, to focus on the wealthy

CP, The Charoen Pokphand group is reorganizing its agribusiness sector in China, where it is known as Chia Tai (CT), to focus in on high-value-added products. The group is now integrating plants in seven provinces and four or five smaller provinces. It is investing in aquaculture facilities within China, all products of which will be distributed within the Chinese market. One of these products is turbot to be raised in Shandong province and expected to market to the 130 million individuals in China classified as rich. Other species targeted include mouse grouper. Turbot, which brings in a price of around (44 US\$) per kg will be mainly marketed in the east coast including Beijing and Shanghai, Grouper which brings in a coast of over (88 US\$) per kg will be focused upon southern regions such as Guangxi and Guangdong. (Source: *AFX News Limited*, May 1, Wednesday, 2002, *Bangkok Post*, May 1, 2002).

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## Proceedings of The Live Reef Fish Trade Workshop April 23, 2001

International Marinelife Alliance

This report includes summaries of the papers presented at the Live Reef Fish Trade workshop in Hanoi, Vietnam on April 23, 2001 and it also provides a record of the discussions and recommendations from the workshop. The following are the list of presentations given in the above workshop:

- Overview of the Worldwide Live Reef Fish Trade, IMA's Indo-Pacific Destructive Fishing Reform Initiative
- Overview of Live Reef Fish Trade in Vietnam
- The impact of cyanide fishing on coral resources in Vietnam
- Activities for coral reef conservation in Vietnam
- Legal issues concerning the management of fisheries resources including the Live reef Fish Trade
- Marine culture strategies in Vietnam, the concept of coastal resources co-management

*The full report can be obtained from International Marinelife Alliance – Vietnam website at <http://www.ima-vietnam.b2vn.com/>.*

### New aquarium species database

Dr Edmund Green

The UNEP–World Conservation Monitoring Centre (UNEP–WCMC) is pleased to announce a new database on the trade in aquarium species, the Global Marine Aquarium Database (GMAD), which is available at <http://www.unep-wcmc.org/marine/gmad>.

Users of the database will have access to approximately 50,000 records of trade in live aquarium species and may query these geographically and taxonomically.

Further data collection is ongoing and the database is continuously being updated, with the release of the next version scheduled for April.

*Reprinted from the SPC Live Reef Fish Information Bulletin # 10.*

# What's New in Aquaculture

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### From sandwiches to sashimi - the success story of Australia's southern bluefin tuna industry

In the early 1980's Australia's Southern Bluefin Tuna (SBT) industry was in a precarious position.

SBT was regarded generally as suitable only for the low-value canned fish market, destined for use on Australia's lunchtime sandwiches. As a result, fishers needed to catch high tonnages of the species to earn a living. The Australian SBT catch peaked in 1982 at 21,500 tonnes.

Concerned over the sustainability of the species, fisheries managers and the industry established quotas in 1984 to limit the tonnage of fish caught to 14500 tonnes. It was reduced to 6,250 tonnes in 1988 and 5,265 tonnes in 1989.

These days, things are different. The wild-catch tonnage caught has stabilized at that set in 1989 and a Convention for the Conservation of SBT has been established between Australia, New Zealand and Japan.

Fish are produced by a combination of wild-catch and aquaculture (farming).

The product's destination is no longer canned tuna but the high value Japanese sashimi market with prices averaging \$1200 per fish. By adding value through tuna farming, operators have increased the value of their catch from \$12.5 million to \$252 million in 2000.

Fisheries Research and Development Corporation (FRDC) Programs Manager Dr Patrick Hone said this remarkable transformation has been achieved through systematic improvement in the knowledge of the species, husbandry processes, technology and marketing.

"This has been led by innovative companies and an industry association that are focused on sustainable development; and establishing partnerships within the industry and with customers and research investors such as the FRDC," he said.

These partnerships began in 1991, when the FRDC collaborated with the Tuna Boat Owners Association of Australia, the South Australian Government and the Japanese Government, in funding the world's first

research and development project associated with farming SBT.

"Farming offered a potential mechanism for improving fish quality, increasing the weight of fish and optimizing the time that fish were marketed," said Dr Hone.

"An experimental farm was established as the focus for developing technology in Port Lincoln. Initially it began with two pontoons, fifteen tonnes of captured SBT and full participation of Japanese farm experts and Australian fishers. The rest, as they say, is history."

However, the industry and FRDC are continuing to look forward, already working on the challenge of breeding SBT in captivity-the success of which could have enormous environmental, economic and social benefits.

The industry and FRDC has ensured that this innovative momentum will not be lost with the recent signing of a Memorandum of Understanding between the Tuna Boat Owners Association of Australia and FRDC that will see an increased investment in R&D by the industry.

"It is partnerships such as these that will ensure the sustainability of the industry and the natural resources on which it depends," said Dr Hone.

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### Seafood retains healthy oils after cooking: CSIRO

There's more good news on the 'good oils' in seafood. Cooking doesn't diminish the high level of beneficial oils found in seafood, according to research released today by the Australian CSIRO.

The research, funded by the Fisheries Research and Development Corporation, shows that seafood – cooked, uncooked or processed, wild or farm-raised – is the best source of nutritionally-important omega-3 polyunsaturated fatty acids.

These fatty acids are needed to help prevent and treat heart disease and other disorders, but the human body only produces them in small amounts, so they must be obtained from the diet.

The research findings are presented in *Seafood the Good Food II*, a book recently released in Hobart.

Information in *Seafood the Good Food II* is intended to help the seafood industry, nutritionists and consumer groups to communicate the health benefits of eating Australian seafood.

The book contains detailed oil profiles for 79 seafood species, as well as information on cooking, processing, aquaculture production and seasonal influences for selected species. It brings the total number of Australian seafood species profiled by CSIRO to nearly 300.

“Most Australian seafood is high in omega-3 polyunsaturated fatty acids and low in cholesterol.” project leader Dr Peter Nichols of CSIRO Marine Research says.

“In fact, it contains 10–100 times higher levels of omega-3 polyunsaturated fatty acids than foods such as beef, chicken and lamb.

“But the nutritional value of farmed seafood, and the effects of cooking and processing on these beneficial oils were unknown, until now.

“We’ve determined that frying, grilling, steaming, microwaving and curing have no adverse effects. That must be good news for seafood lovers.

“And farmed fish such as Atlantic salmon, barramundi, silver perch and striped perch are high in omega-3 PUFA, and feeds can be tailored to increase this nutritional value,” he says.

Nutritional studies continue to emphasise important links between seafood and human health.

“There is now good evidence in humans that the omega-3 polyunsaturated fatty acids in fish reduce heart attacks and particularly death from heart attacks,” Dr Manny Noakes of CSIRO Health Sciences and Nutrition says.

“Animal studies have shown that this may be because omega-3 polyunsaturated fatty acids stop arrhythmias, the irregular heart rhythms that can lead to sudden death from cardiac arrest.”

Dr Noakes says omega-3 polyunsaturated fatty acids from seafood act to lower triglycerides, one of the fats in the blood thought to contribute to heart disease.

They also appear to be involved in blood pressure regulation, platelet function and blood clotting, all of which may contribute to the prevention of heart disease.

The benefits of fish don’t stop at heart disease prevention.

“Omega-3 polyunsaturated fatty acids from seafood may prevent stroke, may reduce the risk of premature births and may guard against prostate cancer,” Dr Noakes says.

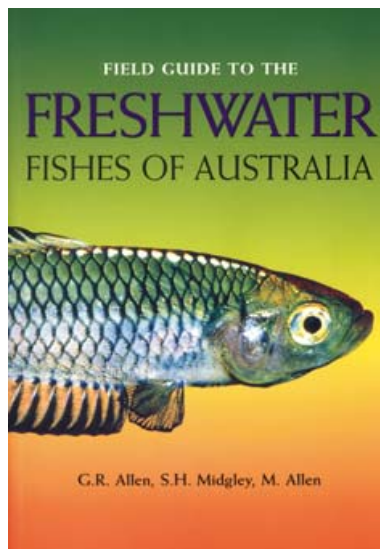
“They are also helpful in the treatment of rheumatoid arthritis and some recent studies indicate a benefit in some forms of depression.”

Steve Gill of the Master Fish Merchants Association of Australia says the findings are great news for the seafood industry.

“Our association will be spread the message through distributing posters and brochures explaining the results of the study to fish retailers throughout the country,” he says.

*Seafood the Good Food II* is available from CSIRO Publishing on +61 1800 645 051.

For more information please contact Dr Peter Nichols, CSIRO Marine Research, on +61 (3) 6232 5279 or email [peter.nichols@csiro.au](mailto:peter.nichols@csiro.au).



### Field Guide to the Freshwater Fishes of Australia

This book is the definitive and only complete work on Australia’s freshwater fish fauna. The 302 species covered in the book are accompanied by good quality colour photographs, a brief taxonomic description, advice on how to recognize the species, details about its preferred habitat, its status and geographic distribution and remarks about its habits and breeding behaviour. Thirty-four Australian native fishes - more than one-

in-ten of our identified species - appear on the IUCN’s “red list” of threatened species. Their fate is a stark indicator of the ailing condition of the continent’s rivers and freshwater systems.

The *Field Guide to the Freshwater Fishes of Australia* is the work of Gerald Allen, Mark Allen and Hamar Midgley, supported by a host of Australia’s best museums, biologists and aquarists. It is a copublication between the Western Australian Museum and CSIRO Publishing, ISBN 0 7307 5486 3. RRP \$45.00 in softback. To order copies contact CSIRO Publishing Customer Services +61 1800 645 051 or email [publishing.sales@csiro.au](mailto:publishing.sales@csiro.au).

*I would say that this guide complements, rather than replaces, the previous definitive book ‘freshwater fishes of Australia’, also by Gerald Allen. While the guide covers a great deal more species - around 300 as opposed to 200 in the previous book, it does so in less detail which I found a little disappointing, however I guess length was an issue. Most of the extra species covered in this book are the more unusual and arcane (and interesting !) ones. Still, if you are into native Australian fishes, this is a great (and lets face it the only) book. Highly recommended. The Editor.*

### Training course - Population Genetics: Applications in Fisheries Resources Management” 22 August - 3 September 2002, Penang, Malaysia.

The objectives of this training course, organised by the International Center for Living Aquatic Resources (ICLARM), include providing participants with a background to the use of genetic markers as a tool for fisheries resource management and to present the pros and cons of the different genetic techniques that may be used for the assessment of genetic variability. See [http://www.iclarm.org/Training/training\\_19Aug02.htm](http://www.iclarm.org/Training/training_19Aug02.htm) or contact [m.ablan@cgiar.org](mailto:m.ablan@cgiar.org) for more information.