

# **FISHING FOR SOLUTIONS**

## **Can the Live Trade in Wild Groupers and Wrasses from Southeast Asia be Managed?**

### **Executive Summary**

The expansion of the live food reef fish industry had its beginnings in Southeast Asia. As the waters around Hong Kong and China became depleted of wild stocks, fishing vessels targeted the coral reefs of the Philippines, Malaysia and Indonesia. With the possible exception of small isolated reefs and well-guarded reserves, it is now unlikely that any coral reef in Southeast Asia has not at some time been fished for live food reef fish.

The pervasiveness of the fishery is one of the few generalisations that can be made about this diverse and dynamic industry. With characteristics ranging from the methods used to catch fish through to the mode of exportation, this report aims to describe the trends, patterns and diversity of the live food reef fish industry in Southeast Asia. This analysis is then used to identify appropriate management interventions at various points in the trade to ensure the sustainability of the fishery.

The four major Southeast Asian countries involved in the industry were investigated in detail for this report: Indonesia, the Philippines, Malaysia and Singapore. Most of the information presented was collected during 1997 and describes the industry up to that year. Official government trade statistics were complemented with interviews of industry members to provide a broad overview of the temporal and spatial trends and patterns in the live food reef fish industry. Although attempts were made to validate this information, it should be remembered that these data are not conclusive and are to some degree inaccurate.

Several localised case studies within Southeast Asia were done to provide details on the exploitation and trade of live food reef fish at the local level. These histories provide insights into the diversity of methods used to catch live fish and of local trading structures. Where

possible, locations for case studies were chosen where links between researchers or non-government organisations and the industry existed.

The official export data suggests a rapid expansion of the live food reef fish industry during the early 1990s. Exports from Southeast Asia rose by more than one order of magnitude, from an estimated 400 t in 1989 to over 5000 t in 1995. Despite this impressive increase, it appears that the industry's boom has come to an end, because in 1996 there was a 22% decline in total recorded exports from the region.

Exports from individual countries reflect this overall trend. Between 1991 and 1995, the vast Indonesian archipelago provided about 60% of the live food reef fish harvested from Southeast Asia. The country's main areas of coral reef lie in the east and the west and the live food reef fish operations in each area have operated relatively independently. Though the western reefs of Indonesia were the first to be targeted in 1985, the industry quickly became established amongst the extensive reefs of eastern Indonesia, where by 1993 this area accounted for more than three-quarters of the country's exports. The bubble finally burst in 1996 when exports from eastern Indonesia fell by over 450 t.

The Philippines was the first Southeast Asian nation recorded as being fished for live food reef fish. However, between 1991 and 1995 it accounted for only 27% of the region's total exports. Until 1993, annual exports increased significantly, but after remaining steady at around 1100 t for three years, they then fell by almost 50%.

Malaysia has coral reefs around its peninsular states and Sarawak, but the greatest area of reef occurs around its easternmost state of Sabah. Malaysian companies first started exporting live fish from Sabah during the mid-1980s, but it was not until 1987 that the industry really developed. Exports reached a peak in 1993 at around 500 t, but have since declined by over 30%.

Singapore is the primary live food reef fish consuming country within Southeast Asia. Increasing amounts of live fish are demanded by Kuala Lumpur in Malaysia and other centres with large Chinese populations. However, these amounts are small compared to Singapore's consumption of around 500 t per year. Most of the live food reef fish imported by Singapore comes from nearby Indonesian islands.

The industry has progressively expanded into the more remote areas of the region. This is illustrated well in Indonesia where official export data are available for each port. Analysis of these data reveals some striking trends. For most regions, once exports began, it took only three to four years for them to reach a peak before declining. Like a wave, the industry has spread throughout the country with live fish exports rising and falling in its wake.

The live food reef fish industry in Southeast Asia is complex. Involving several tiers of trade, the characteristics vary from region to region and have changed over time. Although the fishery began with foreign vessels and crew, there was a rapid turnover to local operations. The high value of live food reef fish, was a persuasive attractant to local fishers. At the same time, exporters found it cheaper to employ locals than bring in their own crew. Thus the fishery, which had been dominated by large, self-contained foreign vessels, soon became a local based industry in many areas. The mode of export of live food reef fish has also changed considerably. When foreign vessels dominated the industry, they often took fish to the market themselves. However, with the shift towards local operations, live fish transport vessels took over this role. Although these vessels are still important in some areas, air shipments have become increasingly more common. Airfreight is now responsible for all of the live fish exports from Sabah and most of those from the Philippines. In Indonesia, exports by air rose from 5% to 40% between 1991 and 1995.

The dominance of Hong Kong as the main export destination has also diminished. China and Malaysia in particular are demanding increasing quantities of live food reef fish. Although much of the product that is exported to China first travels through Hong Kong, an increasing proportion reaches there directly. For instance, direct exports to China from Indonesia increased from 0% to 27% between 1991 and 1995, probably facilitated by the shift towards air exportation.

The shift to local operations was accompanied by an inevitable increase in the industry's diversity. The influence of local fishing methods was particularly strong. Although some local fishers were trained by foreign fishers to use cyanide as a stupefacient, others found that they could catch live food reef fish using traditional methods, or variations of them. Though they vary among regions, villages and fishers, the most common methods are cyanide, hook and line, and trap fishing.

The available evidence suggests that there has been widespread over-exploitation of live food reef fish stocks in Southeast Asia. Global experience has shown over-exploitation often occurs when access to the fish stocks is open to all and when commodity prices are high. This situation is exacerbated by the poverty of many coastal communities in Southeast Asia. A fisher's considerations of the long-term sustainability of the resource are often overridden by the need to feed his family. In the unlikely case that the live food reef fish stocks of Southeast Asia are not already overexploited, they will be in the near future without some form of management.

There is further concern that some of the methods used to catch live food reef fish cause damage to the coral reef ecosystem. The use of such destructive fishing methods not only impacts directly on the industry itself by degrading the reef habitat, but also impacts on the wider coral reef ecosystems. As an important resource for Southeast Asia; coral reef attributes extend far beyond the extraction of fish, thus necessitating the eradication of destructive fishing methods associated with the industry.

It is easy to dismiss the over-exploitation that is currently occurring in the live food reef fish industry as another example of the 'tragedy of the commons'. The lack of data on which to base management decisions could also be used as an excuse for inaction. Such procrastination would be irresponsible because implementation of export quotas would provide an effective means of controlling exploitation rates of live food reef fish. Initially, quotas could be set conservatively based on existing information and then refined as further reports become available on the population dynamics of reef fish. Furthermore, complementary regulations on the allowable sizes of fish and their method of capture could be applied across all trading levels.

The involvement of members of the live food reef fishery is critical to the success of these management strategies. They already recognise that over-exploitation has occurred and have a vested interest in ensuring the sustainability of the stock. Given the forecasts for increases in wealth of the Chinese population, demand for live food reef fish is likely to increase significantly. Combined with the fact that live food reef fish are associated with 'conspicuous consumption', suppliers may be able to demand higher prices if market quantities become restricted. If this is the case then there will be incentives for the live food industry, from fishers through to wholesalers, to reduce the current catch to ensure the industry's sustainability in the future. Co-operation at the international level is imperative, especially since

some reef fish stocks are likely to cross borders, as with fishing operations and the transport of live fish. Without formulation under an international agreement, voluntary reductions in trade are unlikely to arise or to succeed.

The live food reef fish industry is a valuable fishery for Southeast Asia. Effective co-operation of governments, industry and other stakeholders has the potential to ensure live food reef fish stocks are sustainably managed, thus providing a sustainable livelihood for coastal fishers and an incentive for coral reef conservation throughout Southeast Asia.