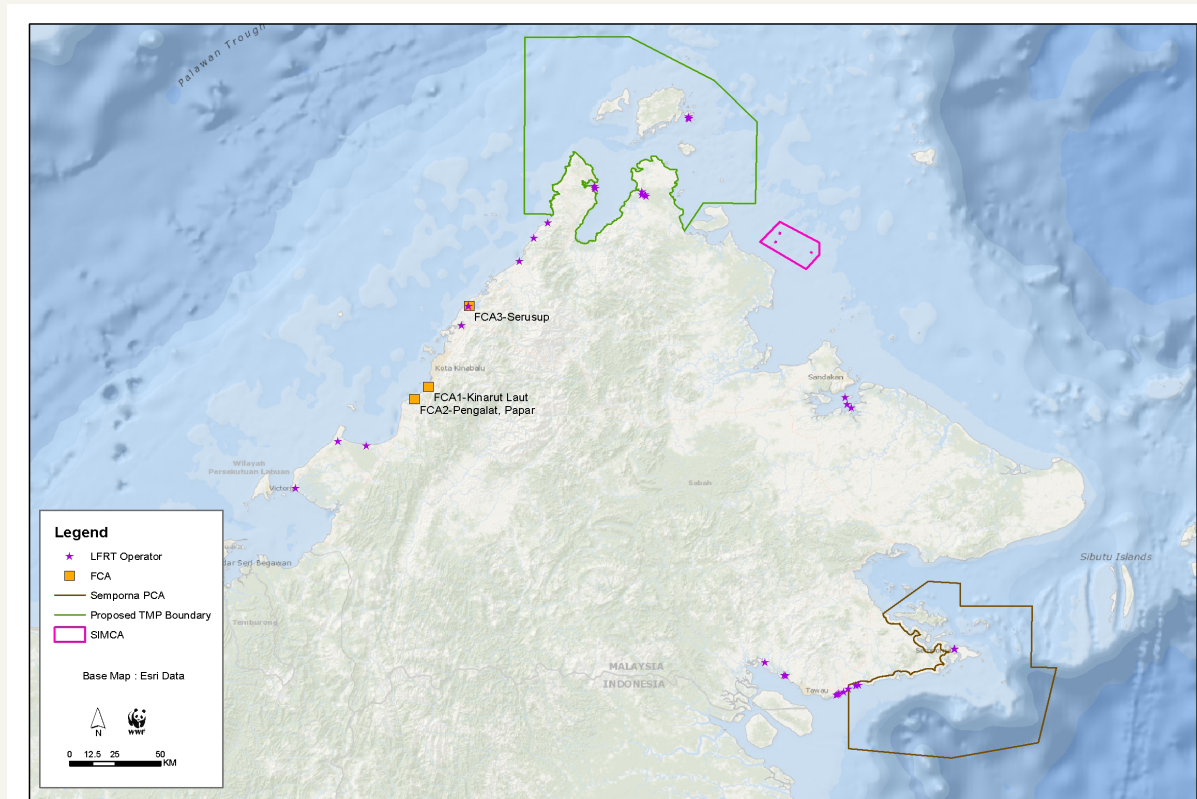
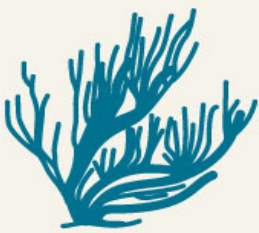


Managing the Live Reef Fish Trade in Sabah

Addressing the decline of live reef fish resources



Sabah has the largest concentration of coral reefs in Malaysia. Live Reef Fish Trade operators are predominant in the districts of Kudat, Sandakan and Semporna, the most sought after species being groupers and humphead wrasse.



BY SHIFTING TO ENVIRONMENTALLY SOUND METHODS, OPPORTUNITY EXISTS TO PROTECT REEFS WHILE EXPANDING THE LUCRATIVE LIVE REEF FISH TRADE INDUSTRY, TURNING IT INTO A MODEL FOR THE SUSTAINABLE DEVELOPMENT OF THE REEF.

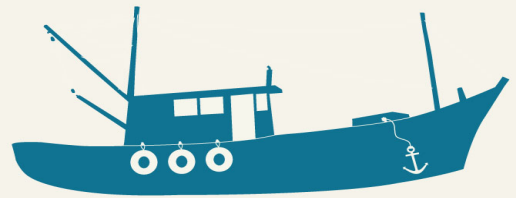
Introduction

The live reef fish trade (LRFT), first introduced in Sabah in the early 1980s, continues to thrive as an important form of fisheries for the Malaysian state on the island of Borneo. In 2007 and 2008, export values of live fish were recorded as RM6.7 million and RM6 million respectively (Department of Fisheries Sabah, 2007), the majority landing in the Hong Kong market. The lucrative prices of live fish make its trade highly attractive for the Sabah fisheries industry.

Continued growth of the LRFT is a major concern for coral reef conservation with significant implications related to the sustainability of the resources. There is a decline in many wild reef fish, a growing number of these species becoming locally rare and threatened. Unsustainable harvesting carried out to cater to increasing

demand threatens the continuity of the trade, jeopardizing the resilience of the reef ecosystems and the people dependent on them.

Four strategies dealing with both demand and supply aspects of the LRFT are in place to address the decline in live reef fish species – establishing a trade body as a channel to uphold sustainable fisheries practices, establishing full-cycle aquaculture among fish cage operators as models of the viability of the application of aquaculture best management practices, studying socio-economic and ecological effects of marine reserve protection to validate efforts to safeguard reefs, and influencing consumer decisions to purchase sustainable fish through awareness campaigns.



Establishing a formal trade body

Engagement with traders from the LRFT industry began in 2009. A series of gatherings in three major urban areas in Sabah - Kota Kinabalu, Tawau and Kudat – resulted in the identification of issues faced by the industry, and the development of a local adaptation of the International Standard for the Trade in Live Reef Food Fish to guide sustainable practices.



Discussion between the Sabah fish farmers dealing with capture of wild live reef food fish, live reef food fish aquaculture, trading and consumption of live reef food fish.



The fish farmers visited one of the farmers' aquaculture farm to share knowledge and to learn from one another in order to tackle issues regarding trading and consumption.

The establishment of the Sabah Fish Farmers Association (SFFA) ensued to formalise earlier discussions and agreements to promote sustainable fisheries and comply with the newly developed Live Reef Fish Trade Standard and Aquaculture Best Management Practices.

SFFA is currently in the process of being registered as an association with the Registry of Societies (ROS) of Malaysia. Members include aquaculture operators, fishermen, hatchery owners, exporters and other entities related to the LRFT.

Promoting full-cycle aquaculture

Full-cycle aquaculture (FCA) of fish species caught for the LRFT is being promoted by WWF-Malaysia. A pilot project for the culture of Tiger grouper (*Epinephelus fuscoguttatus*) began in July 2012 with the establishment of full-cycle aquaculture among three participating operators - Mr. Nordin bin Kasim @ Kassim, Mr. Abdul Agik bin Abdillah, and Mr. Wong Yu Yam, serving as models of the viability of the application of best management practices in aquaculture. Running till June 2013, this pilot project was borne from growing concerns of the practice by the LRFT industry of collecting juvenile fish to be kept for grow-out in cages until reaching a marketable size. This form of culture often employs trash-fish as feed which is produced by destructive fishing practices such as destructive trawling and fish-bombing.

Formal agreements between WWF-Malaysia and each operator outlined the responsibilities of each in implementing grow-out aquaculture of grouper species to adult size using processed feed source and application of best management practices, collaborating in monitoring and documentation of the implementation of the project, and participating in consumer awareness campaigns by supplying adult groupers to selected seafood restaurants located around the State capital, Kota Kinabalu. Preliminary results have provided evidence of the economic benefits of applying FCA with operators engaging with restaurants willing to pay a premium price to support sustainable fisheries.

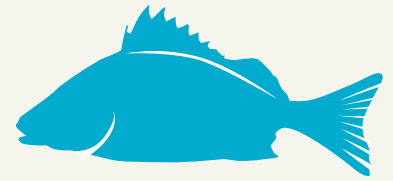


© WWF-MALAYSIA

ONE OF THE MANAGEMENT REQUIREMENTS OF THE FULL-CYCLE AQUACULTURE PROJECT IS TO USE HATCHERY REARED FRY AND FINGERLINGS.

As of April 2013, the average fish from the pilot sites weighed 683.3g based on 12 sample fishes. Preliminary results show that the growth rates are showing marked improvement compared with those fed with trash fish in farms in Sabah.

Subsequently, an additional three farms have voluntarily adopted this FCA model in their stocking of fish. These aquaculture operators hope more farms will follow suit in a bid to improve the industry.



Studying the effects of marine reserve protection

A study of the Sugud Islands Marine Conservation Area (SIMCA), a no-take marine reserve on the east coast of Sabah, was carried out in 2010 to determine fishery and socio-economic effects of the reserve on local fishing communities and to evaluate the effects of reserve protection on reef fish size and abundance. Although findings revealed that the establishment of SIMCA had minimal impact on the fish catch and fishing income of fishermen living in the surrounding area, further investigation to uncover motivation to encroach into or fish near SIMCA revealed that market demand for commercially valuable species such as shrimp and groupers is the main factor driving commercial operations to fish near SIMCA.

The ecological study found that total fish biomass was significantly higher inside the reserve, with highest abundance recorded at sites with full protection. In addition, species richness was also higher at well protected sites. The total biomass of commercially targeted species such as groupers and snappers was highest in well protected reefs, and decreased as distance from Lankayan Island increased (with the decrease in protection levels). This suggests that the removal of fishing mortality may have led to the subsequent recovery of some previously fished species.

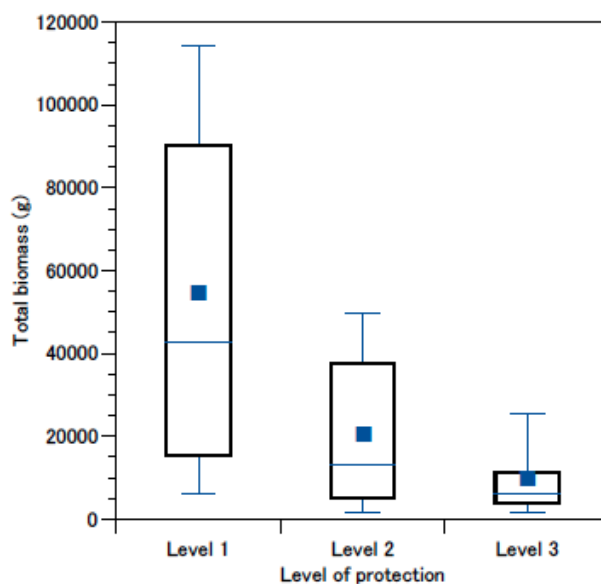


Figure 9: Proportional decrease of total fish biomass (g/250m²) for three level of protection. Symbols (■) = mean, outliers = range, boxes = standard deviation.

“A build-up of fish biomass within a no-take reserve will result in a biomass overflow, leading to emigration of adult or sub-adult fish out of the reserve.”

- Russ & Alcalá 1996

Source:
Final Report:
Determination of
Fishery and Socio-
Economic Effects of
SIMCA on Local
Fishing Communities
and Evaluation of the
Effects of Reserve
Protection on Reef Fish
Size and Abundance.

Influencing consumer purchasing decisions

In 2006, WWF-Malaysia conducted a survey to document consumption patterns, conservation awareness and willingness to change food preferences among live reef fish trade consumers and restaurant managers in Sabah.

Interviews were held with 100 customers at six seafood restaurants in Kota Kinabalu, and restaurant managers from Kota Kinabalu (8), Tawau (7) and Sandakan (7), with updates on active seafood restaurants in Kota Kinabalu conducted in 2010. The survey represented a preliminary step towards addressing information gaps within the Live Reef Fish Trade, focusing on consumers' and restaurant managers' attitudes and perceptions towards the exploitation and conservation of live reef food fish.





Consumption in Sabah concluded that both consumers and managers have a general consensus that some reef fish are threatened. Results of the survey indicated a willingness to pay by the consumer, which is often hampered by the lack of availability of choices of fishes available. As such, FCA projects initiated by WWF-Malaysia should be able to fill in the gaps of the demand for sustainable fish.

Source: Attitude Survey on Live Reef Fish Consumption in Sabah

© WWF-MALAYSIA

Findings of the survey provided crucial input towards the design of the Live Reef Fish Consumer Campaign which was launched in September 2012. The campaign, to create awareness on the destructive fishing methods associated with the supply of live reef fish to the LRFT, urges key groups from within the supply chain (restaurant owners, chefs, tourism operators, fishermen and fishfarming operators) to practice and support sustainable fishing practices. It also educates and encourages consumers, influencing their decisions to purchase sustainable fish.

Consumers can support the sustainability of the live reef fish trade and the health of the reefs:

- Demand to know where and how the fish were caught.
- Avoid fish caught using cyanide.
- Avoid undersized, and therefore, juvenile fish.
- Avoid endangered species such as the humphead wrasse.
- Use the Save Our Seafood guide to make selection of fish species to buy.
- Always choose farmed or sustainably caught fish.



© WWF-MALAYSIA

During the launch of the Live Reef Fish Consumer Campaign, chefs from hotels and restaurants in Kota Kinabalu demonstrated that farmed fish is comparable to wild-caught fish.

For more information, feel free to contact:

Robecca Jumin

Manager

Sulu-Sulawesi Marine Ecoregion (SSME) Programme

Email: rjumin@wwf.org.my

Alexa Antal

Communications Manager

Sulu-Sulawesi Marine Ecoregion (SSME) Programme

Email: aantal@wwf.org.my

In Partnership With :



Funded by :



	<p>Why we are here To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.</p> <p>www.panda.org</p>
--	--