

Trading of Live Reef Food Fish from the Southeast Asian Region: Economic Boon or Bane?

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Trading of live reef food fish starts with the capture of reef fish which are kept alive, and then exported mainly to Hong Kong and China, and to smaller markets in Malaysia and Singapore. Live reef fish have long been traded around Southeast Asia as a luxury food item, and in recent decades trading of live fish captured from coral reefs has rapidly expanded threatening the sustainability of the reef resources. The most commonly traded reef fishes include various species of groupers and leopard coral trout, humphead wrasse, and red snapper.

In many Southeast Asian countries, live reef food fish (LRFF) fisheries and live reef food fish trade (LRFFT) have been considered serious threat to the coral reef ecosystems and biodiversity in view of the severe impacts that such activities could create, such as overexploitation of the reef resources; unsustainable capture of juveniles for grow-out and spawning; irresponsible fishing practices such as the use of cyanide and destructive gears; illegal, unreported and unregulated (IUU) fishing; and inadequate valuation of the resources. Nevertheless, the impact of such activities on coastal communities dependent on the reef resources should also be regarded with great concern. It could not be discounted that LRFF fisheries and LRFFT continue to provide livelihoods to many small-scale coastal fishers, but if not contained, these activities could diminish their future income opportunities as well as threaten local food security. With continued severe overfishing in reefs, time will come when the reef fish resources could no longer sustain local utilization, threatening and even completely losing the potential income generating opportunities such as those in ecotourism and other related livelihoods.

Live Reef Food Fish: Economic and Trade Issues

Wild LRFF fisheries have been reported to be concentrated in the Coral Triangle countries of Indonesia, Philippines, and Malaysia, and thus is LRFFT. Although considered as a very small sector, LRFFT is one of the most lucrative sectors of the seafood industry in Asia, considering that its existence is largely driven by high demand for LRFF in Hong Kong and China, and by the high prices fetched by some LRFF species such as the leopard coral trout (*Plectropomus leopardus*) and humphead wrasse

(*Cheilinus undulatus*). This scenario has pushed the desire of many reef fishers to catch more LRFF, fueling the fishing effort in some of the richest coral reef ecosystems in the world that leads to the overexploitation and depletion of targeted reef fish stocks. LRFFT therefore remains a serious threat to the coral reef ecosystems and biodiversity in Southeast Asia, with serial overfishing occurring in many or most countries of the region and with destructive fishing practices compounding the damages. The most common species of live reef food fish imported to Hong Kong by some Southeast Asian countries recorded from 1997 onwards are shown in **Table 1**.

Table 1. Species of live reef fish imported to Hong Kong from Southeast Asia (1997 onwards)

Common name	Scientific name
Giant grouper	<i>Epinephelus lanceolatus</i>
Humpback grouper	<i>Cromileptes altivelis</i>
Orange-spotted grouper	<i>Epinephelus coioides</i>
Brown-marble grouper	<i>Epinephelus fuscoguttatus</i>
Camouflage grouper	<i>Epinephelus polyphekadion</i>
Leopard coral grouper	<i>Plectropomus leopardus</i>
Spotted coral grouper	<i>Plectropomus maculatus</i>
Humphead wrasse	<i>Cheilinus undulatus</i>
Mangrove red snapper	<i>Lutjanus argentimaculatus</i>

Source: SPC (2007)

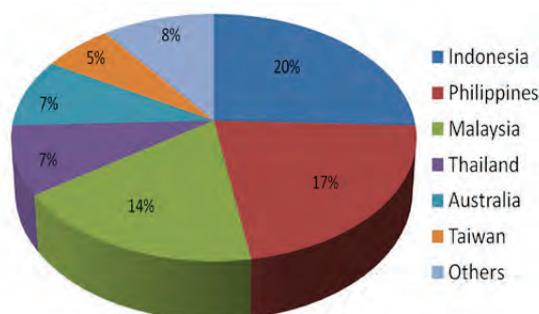
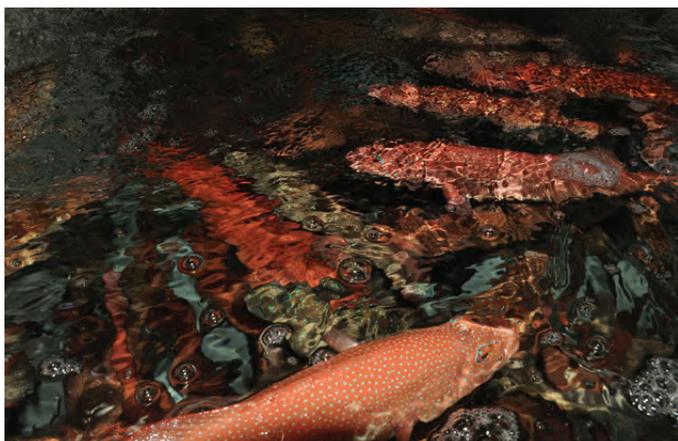


Fig. 1. Share of exporting countries in the volume of LRFF imported by Hong Kong in 2009

In the absence of reliable country-level export data on LRFFT, the best available information was sourced from the import data of Hong Kong, which suggested that between one-half and two-thirds of the LRFF traded originates from three Southeast Asian countries, namely: Indonesia, Philippines, and Malaysia, although Taiwan,



the greasy grouper (*Epinephelus tauvina*) and leopard coral trout (*Plectropomus leopardus*). However, it should also be noted that the region’s export of LRFF had not been disaggregated at species level, thus, species classification in LRFFT could be either misreported or under-reported.

Regional Initiatives to Address Issues on LRFFT

The Coral Triangle which embraces an area of 6.0 million km² and spans from Indonesia, Malaysia, Philippines, Papua New Guinea, Timor Leste, to the Solomon Islands, is known as the global center of marine biodiversity. It hosts 76% of the world’s coral species, 6 of the world’s 7 species of marine turtles, and at least 2,228 reef fish species, which is the most valuable asset in the Coral Triangle. Such reef species are the target of many stakeholders most of whom are small-scale coastal fishers, for the LRFFT in view of the high price commanded by such species in the fish trade arena notwithstanding the need to conserve this valuable reef fish resource.

Australia and Thailand have also been significantly supplying farmed LRFF to the regional market. In the case of Indonesia, Philippines, and Malaysia as the major source of LRFF, management of their respective reef fisheries is either inadequate or even non-existent. Considering that documentation of LRFF production is considerably insufficient, there is a general opinion that in almost every country in Southeast Asia, reef fishery resources could already be overexploited. Although the actual quantities of LRFF traded are difficult to determine, CEA (2011) was able to obtain relevant information from the volume of LRFF imported by Hong Kong in 2009 as shown in **Fig. 1**.

As reported in the Fishery Statistical Bulletin of Southeast Asia 2012 (SEAFDEC, 2014), the total production of major reef fish species from all sources, live and dead fish of the Southeast Asian region in 2012 had been estimated to be about 110,743 metric tons (MT) representing about 0.7% of the region’s total production from marine capture fisheries. Comparing with those in 2011 (**Table 2**), this data indicates that there is an increase in the production of LRFF species in almost all Southeast Asian countries, especially



Table 2. Total LRFF production of Southeast Asia (2008-2012) in metric tons (MT)

LRFF species	2008	2009	2010	2011	2012
Honeycomb grouper (<i>Epinephelus merra</i>)	6,986	8,770	3,968	4,307	6,662
Greasy grouper (<i>Epinephelus tauvina</i>)	-	7,600	3,605	2,336	7,617
Groupers nei (<i>Epinephelus</i> spp.)	7,971	8,828	12,627	10,014	12,207
Humpback grouper (<i>Cromileptes altivelis</i>)	5,993	6,650	7,440	9,229	10,698
Leopard coral grouper (<i>Plectropomus leopardus</i>)	9,139	10,670	10,087	14,482	20,699
Groupers, sea basses nei (Serranidae)	24,358	22,356	24,346	23,963	24,794
Humphead wrasse (<i>Cheilinus undulatus</i>)	4,236	5,540	2,017	1,232	984
Mangrove red snapper (<i>Lutjanus argentimaculatus</i>)	8,975	9,181	8,312	9,627	9,971
Wrasses, hogfishes, etc. nei (Labridae)	14,664	16,351	17,488	16,316	17,111
Total LRFF production	82,332	73,590	89,890	91,506	110,743
Total production from marine capture fisheries	13,814,368	14,140,387	14,874,445	15,095,450	15,590,704

Source: SEAFDEC (2014)

Live Reef Food Fish Trade Intergovernmental Forum

In an effort to address the aforementioned concerns on the sustainability of reef fish resources, the Southeast Asian Fisheries Development Center (SEAFDEC) hosted and co-organized with the Coral Triangle Initiative for Coral Reefs, Fisheries and Food Security (CTI-CFF), the Live Reef Food Fish Trade Intergovernmental Forum on 31 January-1 February 2013. Held in Bangkok, Thailand with support from the US Coral Triangle Initiative (US CTI) Support Program, the Forum was attended by senior officials from six Coral Triangle (CT) and Southeast Asian countries with significant interest in LRFFT, namely: Indonesia, Malaysia, Philippines, Solomon Islands, Timor-Leste, and Viet Nam. The Forum tackled the challenges arising from and affecting LRFFT, and explored the opportunities that could support the sustainable development of the LRFF industry not only in the Coral Triangle but also in the Southeast Asian region as a whole.

While SEAFDEC is mainly tasked to promote the sustainable development of fisheries for food security of the Southeast Asian region, actually it has no direct and specific mandate on LRFFT. Meanwhile, the CTI-CFF has the mandate to address the threats that confront the coastal and marine resources of the Coral Triangle, specifically through more effective management and more sustainable trade in live reef fishes and reef-based ornamentals. The Forum therefore supported the priority actions of CTI-CFF and indirectly, the goal of SEAFDEC on sustainable fisheries.

Role of SEAFDEC in the Intergovernmental Forum

For almost five decades, SEAFDEC has been assisting its Member Countries in the sustainable development of fisheries and aquaculture for food security in the Southeast Asian region. In such endeavor, SEAFDEC has enhanced its cooperation and collaboration with many international and regional organizations as well as management bodies including the ASEAN to enhance its capability in assisting the Member Countries to address issues that impede the sustainable development of fisheries. One of the major issues that tend to hamper the sustainability of the region's fisheries is the trading of live reef food fish not only in the main Coral Triangle countries such as Indonesia, Philippines, and Malaysia but also in other SEAFDEC Member Countries such as Viet Nam, Thailand, and Singapore.

The continuous demand for live reef food fish and the widening geographic scope of the LRFFT have been creating tremendous pressures on the reef fish resources and habitats. The use of destructive fishing methods and haphazard rearing practices of reef fishes as well as the substantial gap on scientific data and information are the

major concerns for the effective management of reef fishery and its trade within the Southeast Asian and Coral Triangle member countries. It is in this regard that SEAFDEC continues to play an active role in the management of reef fish resources by co-organizing the Intergovernmental Forum together with the CTI-CFF in order to discuss the strategies and identify pragmatic solutions to the flourishing LRFFT industry in the region that has created impacts on the sustainability of the reef fish resources. No less than the SEAFDEC Council of Directors, having considered the need to conserve the reef fish resources of Southeast Asia supported the results and recommendations made during the Forum during the Forty-fifth Meeting of the SEAFDEC Council in the Philippines in April 2013. The SEAFDEC Council also gave authority for SEAFDEC to serve as Interim Secretariat in the implementation of the Resolution on Sustainable LRFFT which was developed during the said Forum (SEAFDEC, 2013).

Outputs of the Intergovernmental Forum

Issues that hinder the development of a future management regime for LRFFT, as well as efforts to limit the harvest of reef fish species from the wild and subsequent export of live reef fish, and the establishment of a Stakeholders Forum to support program implementation were also discussed during the Forum. Specifically, the Resolution on Sustainable Live Reef Food Fish Trade for the Southeast Asian and CTI-CFF Member Countries was endorsed and the Forum agreed to designate SEAFDEC as the Interim Secretariat with support from CTI-CFF Interim Regional Secretariat and the US CTI Support Program. The major outputs of the Forum are summarized in **Box 1**.

Resolution on Sustainable LRFFT for Southeast Asian and Coral Triangle Countries

As shown in **Box 1**, one of the major outputs of the Intergovernmental Forum was the approval and signing of the Resolution on Sustainable LRFFT for the Southeast Asian and Coral Triangle Member Countries. The resolution specifically articulated on the commitment of the concerned countries and organizations to pursue



Box 1. Actions resulting from the Intergovernmental Forum

1. **Approval and signing of the Resolution on Sustainable LRFFT for the Southeast Asian and Coral Triangle Countries** by the heads of delegation of the six countries participating in the Forum and attested to by the Secretary-General of SEAFDEC and the representative from the CTI-CFF Regional Interim Secretariat.
2. **Identification of potential agenda items for the LRFFT Regional Forum**, which include: hybridization of grouper species, clear definition of MPA boundaries and responsibility centers, membership in the LRFFT Regional Forum, promotion of aquaculture/mariculture, and assessment of the ecosystem impacts of LRFFT.
3. **Commitment of support from SEAFDEC, USAID and CTI-CFF Regional Interim Secretariat**: SEAFDEC to continue supporting the LRFFT Regional Forum in its capacity as the technical arm of the ASEAN on fisheries development, USAID through the US CTI Support Program to support a meeting between LRFF-producing countries and Hong Kong/China on the demand side, to provide opportunities for representatives from the producing countries to take part in a study visit and learn more on LRFFT with focus on traceability.
4. **Agreement on the crafted way forward**, which includes seeking endorsements from higher authorities of SEAFDEC and the ASEAN, meeting of the LRFFT Regional Forum, and regular meetings between producers and consumers of LRFF.

Source: USAID (2013)

national, intergovernmental and regional actions for the sustainability of LRFFT for the benefit of the stakeholders, especially those dependent on the reef fish resources for their livelihoods. The Resolution contains action items as shown in **Box 2**.

Way Forward

During the 45th Meeting of the SEAFDEC Council in April 2013, the SEAFDEC Council of Directors endorsed the Resolution on Sustainable Live Reef Food Fish Trade (LRFFT) for the Southeast Asian Region and CTI-CFF Member Countries, authorized SEAFDEC to serve as the Interim Secretariat for the LRFFT Regional Forum, and allowed SEAFDEC to enter into collaborative arrangement with the CTI-CFF in order to formalize future cooperation. Such endorsement would enable SEAFDEC to take the leading role in drafting the roadmap and developing the terms of reference (TOR) for the sustainable development of LRFF fisheries, as well as in identifying the organizational and administrative requirements for the Regional Forum.

An ensuing exploratory meeting was organized by SEAFDEC and supporting partners, namely: US CTI Support Program and World Wide Fund for Nature-Coral Triangle Global Initiative (WWF-CTGI) in Hong Kong on 1 August 2013 to initiate the dialogue on sustaining LRFFT. With the Senior Officials of Hong Kong Government's

Agriculture, Fisheries and Conservation Department (AFCD) and representatives from SEAFDEC and supporting partners, the meeting agreed that the ways to sustainably manage these lucrative fishery resources both from the supply and demand sides of the trade, should be closely looked into. Given the importance of Hong Kong and China as the largest consumer markets for LRFF species, the meeting also agreed to reach out to relevant government agencies in these markets.

In this regard, the meeting suggested two routes by which the Hong Kong Government could be engaged in the roadmap. First is through the administrative route by which AFCD can participate in per activity level such as information sharing, *i.e.* statistics on LRFFT imports,

Box 2. Main aspects of the Resolution on Sustainable LRFFT for Southeast Asian and Coral Triangle Countries

1. **Establishment of Marine Protected Areas (MPAs) and conduct of the following activities**: (1) identification of spawning aggregation areas and other transboundary ecosystems that may be included in the Coral Triangle Marine Protected Area System; and (2) establishment of fish *refugia* to protect LRFF species both inside and outside the MPAs.
2. **Development of an Accreditation System** which includes incentives/disincentives designed to encourage LRFF suppliers/traders to follow sustainable and fair trade practices, and to complement the system, countries are encouraged to: (1) establish a network of cyanide testing laboratories to detect violations and promote compliance; (2) identify and collaborate with independent bodies to monitor and check LRFF export and to complement governments' regulatory systems; (3) designate export hubs for shipment of LRFF to simplify trade and streamline regulations; and (4) consider among others, the following conditions for accreditation: (a) proof that export commodity comes from sustainable sources; (b) proof of sustainable management of reef ecosystem; (c) certificate of compliance issued by an independent body designed to monitor and check; and (d) permit to export from designated shipment hubs.
3. **Development and establishment of necessary and appropriate reporting system** to promote consistency in data collection, reporting processes and traceability. The basic information could include species, date caught, size, fishing area, and others as may be required.
4. **Addressing IUU fishing issues related to LRFFT**, which should be consistent with the parties' obligations under the Regional Plan of Action to Promote Responsible Fishing Practices including Combating Illegal, Unreported and Unregulated Fishing in Southeast Asia (RPOA-IUU), and strengthening the cooperation towards preventing transboundary IUU fishing and illegal trading practices.
5. **Enhancing collaboration among participating countries through a Regional Forum**, which is modeled after the Regional Fisheries Management Organization (RFMO) and encourage each country to develop and establish appropriate local and national fora to promote information exchange, collaboration, and continuous dialogue among all concerned stakeholders.

Source: USAID (2013)

consumer education, and aquaculture technology. Since this is within its realm and mandate, the AFCD would integrate this aspect with its current program priorities. The second route is statutory in which case, an ordinance or law could be passed if the intention is to “regulate or control the trade” and sanctions have to be developed and strictly enforced. However, the latter needs some degree of rigor and concrete actionable proposals before the Hong Kong Government could pass the legislative policy on LRFFT. Since this is beyond the mandate of AFCD, relevant bureaus of the Hong Kong Government should be engaged in future discussions on this issue if this route is to be pursued under the roadmap.

Nevertheless, to enable SEAFDEC to pursue the goal of promoting the sustainability of the reef fish resources, it is necessary that the collaboration between SEAFDEC and CTI-CFF be formalized through a Memorandum of Understanding (MOU). SEAFDEC could then explore communication avenues where LRFFT issues could be put forward through various channels of informal fora/dialogues/roundtable discussions with stakeholders where programs, activities, and statistics related to LRFFT imports could be shared. This would also strengthen the role of SEAFDEC as the Interim Secretariat for the LRFFT Regional Forum.

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