



## Fishing the “Last Frontier”: Connections and Dis-connects between Fisheries in Southern Palawan and the Coral Triangle

DYLAN BEATTY  
Ph.D. Candidate in Geography  
University of Hawai‘i at Mānoa

### Abstract

*The Coral Triangle Initiative (CTI) and the Live Reef Fish (LRF) trade in southern Palawan provide a case to explore dynamics of place-based fishing operations and distant consumer markets. In particular, Balabac and Quezon—communities in southern Palawan—allow for theoretical ruminations on identity, transnational markets and sovereignty. The delineation of CTI is premised on coral species diversity and ecoregions in maritime Southeast Asia. The exclusion of the territorially disputed Spratly Islands in the South China Sea (SCS) is equally premised on seemingly clear coral species thresholds. However, there is an egregious lack of data on species diversity in SCS, problematizing the decision for excluding this space from CTI. This exclusion could have direct political, environmental and social ramifications, particularly for fishers in the Philippines. Fishers in southern Palawan traverse multiple, overlapping geographies. This article puts a human face to*

My preliminary research trip to the Philippines in August 2015 was evolving into a fiasco. Until the final week of the trip, I made vain attempts to locate fishers from southern Palawan who traversed the disputed South China Sea (SCS), ocean

space known as the West Philippine Sea in the Philippines. The literature and data about fisheries in southern Palawan indicate fish are becoming increasingly scarce, arguably a sign of unsustainable fishing practices in this maritime region.<sup>1</sup> The Coral

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<sup>1</sup> Michael Fabinyi et al., “Luxury seafood consumption in China and the intensification of coastal livelihoods in Southeast Asia: The live reef fish for food trade in Balabac, Philippines,” *Asia Pacific Viewpoint*, Vol. 53. No. 2 (August 2012): pp. 118-132; Fabinyi et al., “Fisheries Trade and Social Development in the Philippine-Malaysia Maritime Border Zone,” *Development Policy Review*, Vol. 32, No. 6 (2014): pp. 715-732 and Herminie P. Palla, “Fish Catch Monitoring in Quezon, Palawan: Final Report,” Western Philippines University-Puerto Princesa Campus, Puerto Princesa City.

Triangle Initiative’s (CTI) 10-year Regional Action Plan (RAP) includes sustainable management of Live Reef Fish (LRF) in the Coral Triangle.<sup>2</sup> However, despite the tremendous biodiversity in the SCS, this region is not included in the Coral Triangle boundaries as articulated by CTI.<sup>3</sup>

The exclusion of the SCS from CTI’s focus is alarming in the face of continued LRF practices in the region. The seemingly insatiable market for LRF in Hong Kong perpetuates this practice, a fishing practice that oftentimes includes the use of cyanide. Furthermore, the decision to not include the SCS in the area targeted by CTI could have implications for the Chinese Navy’s systematic destruction of coral reefs in the SCS to construct artificial islands. Such wanton destruction of coral reefs further menaces the biodiversity of this seascape. These activities would probably have caused a cacophonous, global condemnation if this destruction occurred *within* the area the CTI focuses on. This is not the case. While the coastal waters of Palawan are included in the CTI, the disputed waters adjacent to Palawan in the SCS are not. This destruction occurs beyond the delimitation of the Coral Triangle. While Chinese activities in the SCS have been

condemned repeatedly, the environmental consequences are not typically articulated. Plans to exploit hydrocarbon in the SCS poses different dangers, including oil spills. This issue is especially striking since enormous portions of Southeast Asian communities rely on fisheries in the coral triangle for calorie intake. For example, it is estimated that fish provide approximately 65-percent of animal protein for Filipinos, Indonesians and Malaysians.<sup>4</sup> Incorporating the SCS in the Coral Triangle could provide opportunities to mitigate consequences of hydrocarbon mining in this crucial ocean space.

In Palawan, bureaucrats from a variety of different government agencies and non-governmental organizations as well as several scholars from different academic institutions seemed to perceive me as a nuisance.<sup>5</sup> Most concurred that fishers from Palawan, small-scale fishers in particular, did not venture to the troubled and disputed waters around Spratly Islands due to cost, distance, and the diminishing value of Leopard Grouper, a species driving the transnational LRF trade in the region. I was informed that the only fishing operations that ventured that far were not from Palawan. Rather, capital intensive, large-

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<sup>2</sup> Mary George and Azhar Hussin, “Current Legal Developments South East Asia,” *The International Journal of Marine and Coastal Law*, Vol. 25 (2010): p. 447.

<sup>3</sup> J.E.N. Veron et al., “Delineating the Coral Triangle,” *Galaxea, Journal of Coral Reef Studies*, Vol. 11 (2009): p. 94.

<sup>4</sup> Craig C. Thorburn, “The House that Poison Built: Customary Marine Property Rights and the Live Food Fish Trade in the Kei Islands, Southeast Maluku,” *Development and Change*, Vol. 32 (2001): pp. 151.

<sup>5</sup> Government agencies include branches of the Office of Agriculture in Puerto Princesa and Quezon, the Officer of Fisheries in Quezon, the Office of the Mayor of Kalayaan in Puerto Princesa. Universities include Palawan State University and Western Philippines University. NGOs include Palawan Council for Sustainable Development.

scale fishers hailing from Cebu, Manila and Batangas were the only Filipino nationals operating in the Spratly Islands.

One local academic contradicted the message I repeatedly received, stating four years prior he had contacts in Quezon, a municipality in southern Palawan, who were active participants in the LRF and travelled as far as the Spratly Islands in search of Grouper.<sup>6</sup> In Quezon, I established contacts with the owner of a middle-scale fishing operation targeting LRF. I learned that LRF fishing operations were dictated by seasons. Part of the year, fishers target LRF in Tawi-Tawi on the periphery of the Sulu Sea and situated within the targeted area of the CTI. The other part of the year, LRF fishers from southern Palawan target the Spratly Island region. Again, these LRF operations in the Spratly Island region fall outside the targeted area of the CTI. The business owner emphasized the fishers he employs are becoming concerned by the increasing militarization of this maritime space by the Chinese Navy. This anecdote illustrates a disconnect between knowledge of local state bureaucracies and the actual practices of local fishers.

Ironically, these fishers risk safety in the face of Chinese naval vessels to procure LRF for markets in China. Reports of Chinese naval vessels blasting Filipino fishermen with water cannons illustrate this.<sup>7</sup> Although including the SCS in the

Coral Triangle may be politically prohibitive, it could also furnish a framework to provide more security to these marginalized Filipino fishers.

This article consists of four sections, including this introduction. The second section explores the relationship between fisheries in Palawan and the transnational LRF trade. This section focuses on different epistemologies of fisheries, processes of integrating local communities into global markets and site-specific geographies of southern Palawan. The third section introduces the CTI and the exclusion of the SCS from its delimiting boundaries. The fourth section is a conclusion, highlighting the politicization of the CTI and its ecological and geopolitical consequences.

### **Fisheries of Palawan and Live Reef Fishing**

To understand the nature of fisheries in southern Palawan vis-à-vis the LRF Southeast Asian seafood trade, it is helpful to explore processes of integrating place-based fisheries into larger seafood trade networks. This section is further divided into subsections. The first deals with general histories and themes of fisheries, particularly shifting epistemologies of fishing science. The second section deals with the current state of fisheries globally, attempting to connect dynamics of localized place with the wider space of capitalized seafood

<sup>6</sup> Herminie Palla, PhD candidate at Western Palawan University.

<sup>7</sup> Natashya Gutierrez, “PH Coast Guard confirms Filipino fishermen harassed by China,” *Rappler*, April 20, 2015; Jose Katigbak, “US Condemns China’s use of water cannons,” *The Philippine Star*, April 23, 2015 and Manny Mogato, “Philippines accuses China of turning water cannon on its fishing boats,” *Reuters*, April 21, 2015.

trade networks. The third subsection provides a brief overview of the nature of fisheries in southern Palawan. These dynamics remind us that species taxonomies and geopolitics are not the only factors to be considered when assessing the CTI. Economic factors drive production, trade, markets, and livelihood in the region. Fishers and fish move inside and outside the Coral Triangle, connecting local fisheries to global markets, transcending the boundaries of the CTI.

### *Epistemologies of Fishing Science*

Historically, the relationship between humanity and fisheries was consistently shaped by social, political, economic, and even sacred contexts. The most extreme evolution in this relationship occurred over the past 100 years, a time-period that witnessed a tremendous industrialization of fisheries. This shift to capital intensive, industrialized fisheries was dependent on the commoditization of fish, a process characterized by hyper-fluid capital and mobile fishing methods. Looked at another way, this shift responds to dynamics between place, space and the movement of people and fish. Fish and large-scale, industrial, human fishers are not stationary. Rather, this relationship traverses vast distances. Indeed, Blue-fin Tuna can swim up to 60 miles per hour and are

labelled as a “highly migratory species”. Bestor points out that this designation as a highly migratory species is “not only a statement about behavioral biology, it is a statement about politics... ‘Highly migratory species’ are those that swim across multiple national jurisdictions”.<sup>8</sup> Because of this classification as highly migratory, Bestor humorously writes that the International Commission for the Conservation of Atlantic Tuna’s ultimate task is to “impose political order on stateless fish”.<sup>9</sup> The fluidity and stateless nature of tuna reflects the fluidity and transnational nature of the global seafood industry. Furthermore, it echoes similar challenges facing the CTI-6 (Indonesia, Malaysia, Papua New Guinea, Philippines, Solomon Islands and Timor-Leste) in Southeast Asia.

Different communities attach different forms of value to fish. Citizens of highly industrialized societies commoditize fish while members of different communities may endow different forms of value to fish. These different values could take the form of reverence of a particular place, an ontology which could result in different ways to catch fish. Lam and Pitcher trace the development of fishery production through archeological and historical evidence, arguing that the Roman Empire signposts the first instance of the commoditization of fish.<sup>10</sup> More than Roman fishing

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<sup>8</sup> Theodore C. Bestor, “Supply-Side Sushi: Commodity, Market, and the Global City,” *American Anthropologist*, Vol. 103, No. 1 (Mar., 2001): p. 86.

<sup>9</sup> *Ibid.*, p. 86.

<sup>10</sup> Tony J. Pitcher and Mimi E. Lam, “Fish commoditization and the historical origins of catching fish for Profit,” *Maritime Studies*, Vol. 14, No. 2 (2015): pp 2-4.

excursions, Pitcher and Lam argue that post-WWII technologies such as sonar and radar altered the human/fish relationship, technologies which contributed to the near extinction of North Sea herring in the 1960s.<sup>11</sup>

Finley also argues that post-WWII marked a radical shift in the human/fish relationship, tracing the relationship of American hegemony, politicized scientific paradigms, and various conceptions of maximum sustained yield (MSY).<sup>12</sup> American federal fishing policies were shaped by the faulty notion of MSY, an epistemology which encouraged reckless fishing practices. Disturbingly, core documents used as empirical evidence lacked any quantitative metric<sup>13</sup> a fact which tautologically strips any semblance of scientific integrity to numerical charts and graphs. This dependence on rational production and industrialized fishing operations threatened the durability of global fisheries.

This American hijacking of deluded scientific understandings illustrates Lam and Pitcher’s distinction between modern modes of fishery production and conceptions of “cultural property”.<sup>14</sup> Lam and Pitcher argue two solutions to the commoditization of fish and the consequences

of threats to species diversity. One is a value shift which emphasizes cultural property, a concept defined as:

a way of knowing shared among community members that recognizes, in addition to possessions and rights, social relations and place attachments, both integral to the particularized and rooted ecological knowledge, customs, and livelihood practices of indigenous and traditional cultures.<sup>15</sup>

They argue the importance of attachment to place warrants the usage of a “generational index” to quantify degrees of attachment to place.<sup>16</sup> However, in the context of Balabac and, possibly, Quezon, this index seems less applicable. Fabinye et al. point out the current population of Balabac only began arriving during the 1970s and was tied to religious and political unrest in Mindanao.<sup>17</sup> Consequently, it could be argued that fishing practices in Balabac are shaped not only by integration into regional seafood trade networks, but by a lack of generational attachment to adjacent fisheries.

The second strategy to combat the species destruction spurred by the commoditization of fish is shifting governance as well as channeling financial incentives to

<sup>11</sup> Ibid., p. 12.

<sup>12</sup> Carmel Finley, “The Social Construction of Fishing, 1949,” *Ecology and Society*, Vol. 14, No. 1 (2009).

<sup>13</sup> Ibid., 6.

<sup>14</sup> Mimi E. Lam and Tony J., “Pitcher Fish Commoditization Sustainability Strategies to Protect Living Fish,” *Bulletin of Science Technology Society*, Vol. 32, No. 1 (February 2012): p. 36.

<sup>15</sup> Ibid., p. 36.

<sup>16</sup> Ibid., p. 37.

<sup>17</sup> Fabinye et al., 2012, pp. 124-125.

local communities.<sup>18</sup> Berkes et al. accentuate the tensions between attachment to place<sup>19</sup> and large-scale, industrial fishers with boundless, global vision. They write:

Existing marine protected areas (MPAs) and no-take areas (NTAs) are often too small and too far apart to sustain processes within the broader seascape, and monitoring and enforcement are often inadequate.<sup>20</sup>

Despite the existence of MPAs and NTAs, "roving bandits" or highly industrialized fishing operations can efficiently (and destructively) catch fish and other marine species beyond the spatial extents of these areas. Furthermore, the highly mobile nature of these fishing operations increase the potential for illegal harvesting within these protected areas.

At the heart of challenges to sustainable fishing is the roles played by place, space and movement. Lam and Pitcher's advocacy of a generational index and emphasis on attachment to place highlights one dimension of these spatial dynamics. However, in the case of Balabac and other villages in southern Palawan, there could be a significant lack of attachment to place since much of the population is made up of migrants. Furthermore, Berkes et al. notion of "roving

bandits" illustrates the challenges to sustainable fishing practices posed by highly industrialized and mobile fishing operations.

### *Integrating local Fisheries in the Global Seafood Trade*

Understanding the links between place-based fisheries and large-scale seafood trade networks poses the most significant hurdles to formulating strategies for mitigating practices which undermine the durability of fisheries and damage marine ecologies. As local communities and small-scale fisheries are increasingly integrated into global trade networks, fish often become commoditized and the actual costs of fishery production is not understood by consumers. This problematic dynamic inherent to place-based fishery production and the vast space connected through the global seafood trade network "masks" from the consumer the real cost of fish production in particular locations.<sup>21</sup> Despite the oftentimes detached role of the consumer, assuredly, the effects of globalization and the commoditization of local fish production have tangible consequences for local communities and ecologies. The expansion of LRF in Palawan provides an example of the oftentimes detrimental effects integration into the global economy

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<sup>18</sup> F. Berkes et al., "Globalization, Roving Bandits, and Marine Resources." *Science*. Vol. 311, No. 5767 (2006): pp. 1557-1558 and Lam and Pitcher, 2012, p. 36.

<sup>19</sup> Berkes et. al., 2006, p. 1558.

<sup>20</sup> Ibid., p. 1558.

<sup>21</sup> Beatrice I. Crona et al., "Masked and drowned out: how global seafood trade weakens signals from marine ecosystems," *Fish and Fisheries* (2015 A): pp. 1-8.

has on local communities in developing countries.<sup>22</sup> For instance, data collected by scholars from Western Philippines University indicate that fish catch is declining for local fishers.<sup>23</sup> While the transnational LRF may not be the sole driver of this decline, it certainly plays a role.

Crona et al. attempt a sweeping meta-analysis of fisheries and seafood production sites globally in order to assess the impacts of integrating small-scale fisheries into global markets. Recognizing the exceeding complexity of this topic, they suggest employing “syndromes”—based on the Greek meaning “flowing together of many factors”—to “identify local recurring patterns of social and ecological outcomes in relation to the development of international trade in marine commodities” to overcome the tendency for sectoral, single-faceted and single-scalar approaches.<sup>24</sup>

Crona et al. assessed literature for 18 sites spanning the globe, including the global South and the global North. One of the sites considered was the LRF trade of the Philippines. They distinguished three syndromes—Syndrome A which was characterized by healthy stocks, Syndrome B which was characterized by declining stocks and rising conflict between fishery

actors, and Syndrome C which was characterized by declining stocks and elite wealth accumulation. The healthy state of the fisheries of Syndrome A were attributed to well-functioning and enforced institutions along with the presence of infrastructure.<sup>25</sup> Some of the main reasons attributed to declining stocks and increasing conflict in the cases of Syndrome B were a lack of well-functioning and enforced institutions along with the absence of patron–client relationships.<sup>26</sup> Similar to Syndrome B, Syndrome C fisheries are characterized by declining fish stocks. In addition, this syndrome is characterized by “decreasing incomes for fishers and an accumulation of wealth among traders”.<sup>27</sup> These sites were recently integrated into the global seafood market and were oftentimes characterized by destructive fishing practices including the use of “cyanide and blast fishing that have caused collateral damage on the ecosystem as well as negative health issues associated with diving”.<sup>28</sup> The Philippine LRF trade is included in Syndrome C. Furthermore, LRF fishers in southern Palawan frequently use cyanide and dynamite fishing as well.<sup>29</sup> One outcome of this study was cases within each syndrome generally represent fisheries on multiple

<sup>22</sup> Fabinyi et al., 2012.

<sup>23</sup> Palla, 18.

<sup>24</sup> Crona et al., “Using social–ecological syndromes to understand impacts of international seafood trade on small-scale fisheries,” *Global Environmental Change*, Vol. 35 (2015 B): p. 163.

<sup>25</sup> Ibid., p. 168.

<sup>26</sup> Ibid., p. 168.

<sup>27</sup> Ibid., p. 169.

<sup>28</sup> Ibid., p. 169.

<sup>29</sup> Fabinye 2012, p. 122.

continents, “suggesting that similar outcomes can be produced through common causal pathways across multiple geographic and cultural contexts, lending support to the notion of tele-connectivity”.<sup>30</sup>

In a perfect world, when a particular fishery is facing environmental degradation or threats to sustainability because of overfishing, consumers would see explicit signals such as drastic price increases. These signals would make the consumer aware of unsustainable fishing practices. However, there are specific mechanisms, which hide these true costs from consumers such as “masked”, “diluted”, and “drowned out”.<sup>31</sup> They write:

Thus, despite publicity campaigns about the dire state of stocks and eco-systems, the consistent availability of fish at affordable prices sends contradictory signals to consumers, limiting what transformations consumer driven demand alone can achieve.<sup>32</sup>

The consumer lack of understanding of the real cost of fish production has disastrous implications for the durability of a fishery in a particular place.

They argue three overarching mechanisms inherent to global seafood

networks hide the true cost of local fishing production from the consumer. The first mechanism is “masking”. One part of this masking mechanism is “collateral ecological impacts” which are external to the specificity of the site of production. One example would be that “fisheries may lead to habitat damage...and by-catch of endangered megafauna with no effect on yields or costs...unless regulation or certification specifically internalizes them”.<sup>33</sup> The second mechanism is “dilution” which functions on an aggregate scale. They write that dilution occurs when the substitution of fish from one source hides depletion of fish from another source.<sup>34</sup> Their notion of “drowned out” encompasses different market factors such as changes in consumer spending patterns and government subsidies.<sup>35</sup>

They suggest three strategies to closing this feedback loop. The first is to strengthen feedback signals by implementing traceability schemes to link consumers directly with information on source production.<sup>36</sup> The second involves the potential furnished by horizontal and vertical integration of seafood networks. Such integration could lead to key market actors to promote more sustainable

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<sup>30</sup> Crona et al., 2015 B, p. 172.

<sup>31</sup> Crona et al., 2015 A.

<sup>32</sup> Ibid., p. 2.

<sup>33</sup> Ibid., p. 3.

<sup>34</sup> Ibid., p. 3.

<sup>35</sup> Ibid., p. 3.

<sup>36</sup> Ibid., p. 5.

fisheries.<sup>37</sup> This is particularly interesting because it suggests further centralization of fishing operations could a positive development, a notion strongly opposed by other scholars.<sup>38</sup> The third strategy is targeting policy makers and political elites to enact change. One example is the recent European Union discard ban.<sup>39</sup> It is difficult to predict how effective such a strategy would be in the Philippines or Palawan, political landscapes often characterized by patron-client relationships. One point emphasized by Crona et al. is the critical role of small-scale fisheries to local communities. Fisheries provide poverty reduction, employment and food security, benefits which are particularly important to communities in developing countries such as the Philippines or communities geographically disadvantaged by distance from markets such as Balabac and Quezon.<sup>40</sup>

Fabinye et al. trace the myriad dimensions to the LRF trade in Balabac.<sup>41</sup> They use the concept of intensification, an idea typically affiliated with agriculture. They write intensification is a “means of increasing production from a constant area

of land or obtaining the same production from less land”.<sup>42</sup> One factor contributing to this intensification is increasing population growth along coastal areas. They argue that migration plays a crucial role in this coastal population growth, adding that in “many parts of SEA [Southeast Asia], fishing livelihoods, mobility and migration are closely linked”.<sup>43</sup> This is certainly true for Balabac. Groups indigenous to Palawan recently began migrating from upland Palawan to coastal areas to seek better opportunities as fishers.<sup>44</sup> However, anecdotally, in Quezon I observed the prominence of Bisayan, a language not native to Palawan. Furthermore, I lived with a respected healer and his family who migrated from Mindanao in the 1990s. In addition to discussing the role of migration, Fabinye et al. employ a theoretical approach that includes the concept of ecologically unequal exchange as a lens to observe links between Southeast Asia and China. They write, “...viewed in terms of large-scale flows of marine resources the process is clear – Chinese consumption of luxury seafood is a direct driver of ecological

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<sup>37</sup> Ibid., p. 5.

<sup>38</sup> For example, see Bavington et al., 2004.

<sup>39</sup> Crona et al., 2015 A, p. 5.

<sup>40</sup> Ibid., p. 6.

<sup>41</sup> Fabinye et al., 2012.

<sup>42</sup> Ibid., p. 120.

<sup>43</sup> Ibid., p. 120.

<sup>44</sup> Wolfram H. Dressler and Michael Fabinyi, “Farmer Gone Fish’n? Swidden Decline and the Rise of Grouper Fishing on Palawan Island, the Philippines,” *Journal of Agrarian Change*, Vol. 11, No. 4 (October 2011): pp. 536-555.

degradation in SEA [Southeast Asia], with likely long-term consequences”.<sup>45</sup> Despite this, Fabinye et al. concede that commodity fisheries such as the LRF trade provide livelihood for many coastal communities.<sup>46</sup>

However, this seems slightly at odds with Crona et al. description of their third social-ecological syndrome, of which the Philippine LRF trade is categorized. Crona et al. emphasize Syndrome C typically includes “decreasing incomes for fishers and an accumulation of wealth among traders”.<sup>47</sup> Perhaps, it would be more accurate to claim that some fishers in southern Palawan witness increased incomes because of connections to the regional LRF trade while others experience diminished incomes and increased exploitation. Despite this seeming disagreement, Fabinye et al. seem to closely agree with Crona et al. over the problems of global market dynamics undermining local institutions, writing, “...often, the strength of the market demand from China quite simply overwhelms any local institutions for sustainability that may exist”.<sup>48</sup> Despite local politics and recent United States Agency for International Development (USAID) initiatives, the driving force behind fishing activities in southern Palawan is the integration of the region with consumer markets in China.

One interesting element to the Balabac LRF trade is the strengthening of transnational trade networks. Fishers and traders in southern Palawan are often more oriented culturally, economically and religiously toward Malaysia than the Philippines proper. This is particularly true with the overall Muslim community in Balabac. It is interesting to note that processes of globalization and reconfigurations of international relations to translocal relations are not the only factors influencing this multiplicity of identity in Balabac and LRF fisheries in southern Palawan. Historical, political, colonial, and religious histories are just as influential for this construction of community identity. LRF commodities produced in the SCS and other waters surrounding Palawan flow south to Sabah. Because of Malaysian government subsidies, Malaysian commodities are oftentimes cheaper than commodities in southern Palawan, a place quite distant from larger urban centers in the Philippines. Consequently, Malaysian products are often seen in Balabac and southern Palawan.<sup>49</sup> Fabinye et al. conclude that the connections between demand for LRF commodities in China and Southeast Asian fisheries display many characteristics of ecologically unequal exchange. They write the LRF trade is “arguably an example of how at a broad scale, the East Asian region is consuming or

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<sup>45</sup> Fabinye et al., 2012, pp. 120-121.

<sup>46</sup> Ibid., p. 122.

<sup>47</sup> Crona et al., 2015 B, p. 169.

<sup>48</sup> Fabinye et al., 2012, p. 122.

<sup>49</sup> Ibid., p. 127.

‘appropriating’ the marine resources of SEA [Southeast Asia], yet the long-term environmental cost of this consumption is borne by SEA”.<sup>50</sup> Reports of declining fish catch in Quezon could reflect this ecological unequal exchange in other fishing villages in Palawan.<sup>51</sup> A broader introduction to fisheries in southern Palawan and site descriptions of Balabac and Quezon is provided below.

*Site Descriptions of Balabac and Quezon: Two municipalities in southern Palawan and their key similarities and differences.*

The 2010 Census reported a population of 771,667, excluding the main city of Puerto Princesa.<sup>52</sup> Palawan is known as the “Last Frontier” of the Philippines. The communist New People’s Army (NPA) reportedly has minor operations on the island and in southern Palawan.<sup>53</sup> Nalzaró’s research on fishing villages in Palawan provide a useful overview of the fishery landscape of the island, particularly organizational membership of fisherfolk in a variety of cooperatives and other organizations.<sup>54</sup> Other influential factors on fisheries in Palawan are USAID and the Coral Triangle Support Partnership (CTSP).

This initiative’s objective is to encourage more sustainable fishing practices in Palawan (USAID).

Quezon is a municipality of medium size in southern Palawan. The 2010 Census reports a population of 55,142.<sup>55</sup> A study affiliated with the Ecosystem-based Fisheries Management (EBFM) Component of the USAID-funded CTSP was published in 2009. It should be pointed out that the data collected is gender-skewed, with an overwhelming percentage of respondents being male. In Quezon, 100 percent of respondents were male. The report estimates 250 LRF fishers operate out of Quezon.<sup>56</sup> It is difficult to discern the portion of these 250 fishers who traverse the more dangerous and militarized waters deep in the SCS. Indeed, it should be emphasized that the figure of 250 is an estimate only. However, during my discussions with the owner of a fishing operation in Quezon in August 2015, I was informed that perhaps over 100 LRF fishers based in Quezon actually travel to these distant reefs in the Spratly Islands in search of grouper. Again, this figure is difficult to verify and is based on anecdotal evidence. The EBFM study reports residents of Quezon spend around

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<sup>50</sup> Ibid., p. 129.

<sup>51</sup> Palla, p. 18.

<sup>52</sup> “Palawan’s Population Increased by 180 Thousand,” 2010.

<sup>53</sup> Redempto D. Anda, “Police nab top NPA commander in Palawan,” *Inquirer Southern Luzon*, February 2014.

<sup>54</sup> Oscar G. Nalzaró, “Organizational Membership of Fisherfolks in Fishing Villages in Palawan, Philippines,” *Asian Journal of Business and Governance*, Vol. 3 (January 2013): pp. 115-128.

<sup>55</sup> “Palawan’s Population Increased by 180 Thousand,” 2010.

<sup>56</sup> Raoul Cola, “Income Profile of LRFF Fishers in Palawan and Tawi-Tawi.” *WWF-CTSP Palawan report 2009*, July 2009.

six years in school. The mean number for income sources for respondents in Quezon is two. In addition to fishing, respondents also reported alternate sources of income, mostly from livestock and poultry. The report also provides in-depth quantitative data detailing a variety of fishing methods used in Palawan and Quezon. The mean annual income from LRF fishing sources in Quezon was reported as P 252,096 (Pesos). This is approximately 5,300 USD. Balabac is the southernmost point of Palawan. In this sense, it could be romantically characterized as the outer-edge of the “Last Frontier” of the Philippines. The 2010 Census reports a population of 35,758.<sup>57</sup> Very little demographic information exists about Balabac.

While the integration of fishing villages of developing countries like the Philippines into the global seafood trade provides certain economic benefits to some members of those communities, there is potential for irreversible environmental damage. Unsustainable fishing practices, oftentimes masked by larger seafood trade network dynamics, threaten food security for local littoral communities in Southeast Asia. Fishing villages in southern Palawan provide examples of how the commoditization of fish threaten food security for these communities.

As mentioned above, LRF fishers in these communities target two areas—the

Spratly Island area and Tawi-Tawi. Essentially, their activities straddle multiple boundaries. First, their trade of LRF spans across the national borders of the Philippines, Malaysia, Brunei, and China. Second, LRF operations in the SCS traverse spatial claims of several states—Brunei, China, Malaysia, the Philippines, Taiwan, and Vietnam. Third, their LRF operations straddle the border demarcating the area of focus for the CTI. LRF fishers in southern Palawan operate within and outside of the area of the CTI, illustrating potential problems of not including sections of the disputed SCS in the CTI. Below, the CTI will be explained in more detail.

### **Coral Triangle Initiative**

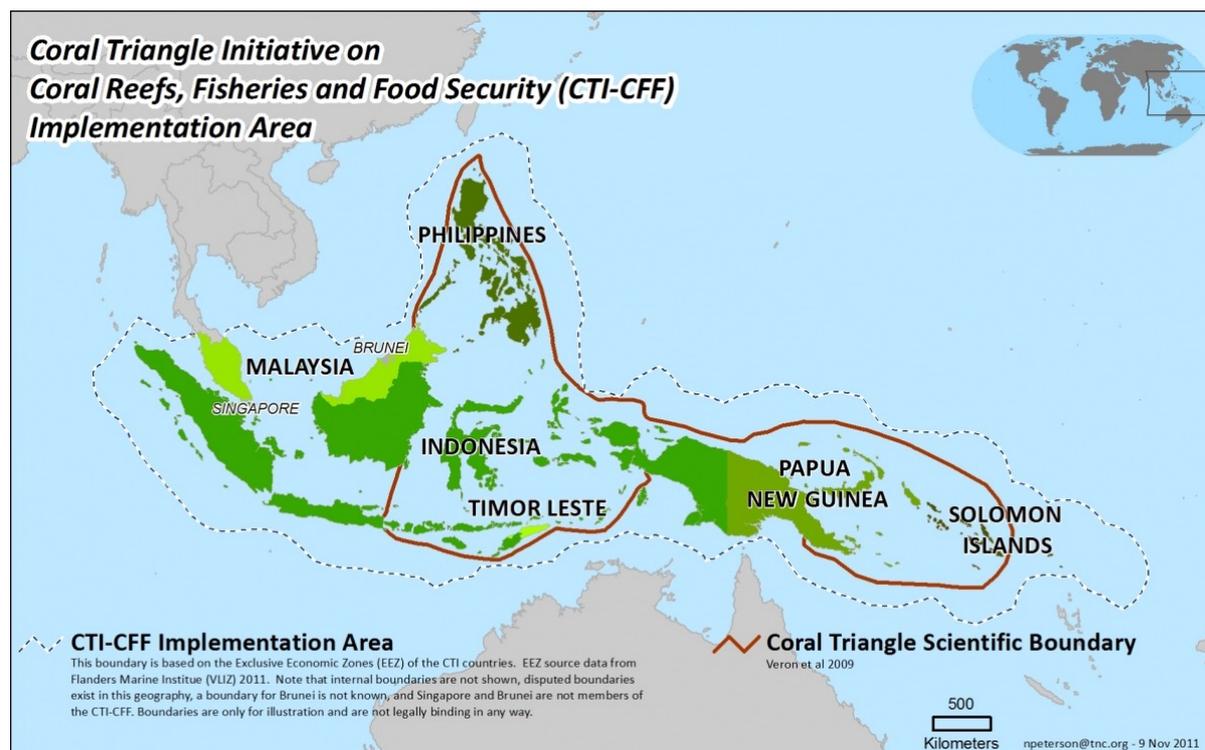
The Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI) is a multilateral partnership of six-nations formed in 2007 with the overall objective of addressing the “urgent threats” facing the coastal and marine resources of “one of the most biologically diverse and ecologically rich regions on earth”.<sup>58</sup> CTI-CFF is managed through a Secretariat based in Jakarta, Indonesia. Indonesian President Susilo Bambang Yudhoyono spearheaded the organization of the CTI.<sup>59</sup> In September 2007, 21 Heads of State at the Asia-Pacific Economic Cooperation Summit approved the CTI.<sup>60</sup> In December 2007, the CTI was officially launched during the 13<sup>th</sup>

<sup>57</sup> “Palawan’s Population Increased by 180 Thousand,” 2010.

<sup>58</sup> “About CTI-CFF.” *Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security*.

<sup>59</sup> “About CTI-CFF” and George and Hussin, 2010, p. 443.

<sup>60</sup> George and Hussin 2010, p. 443.



Map of the CTI-CFF Implementation Area and the Coral Triangle Scientific Boundary.  
Image from “About CTI-CFF”.

Conference of the Parties to the UN Framework Convention on Climate Change (Ibid., p. 443). In May representatives of Indonesia, Malaysia, Papua New Guinea, the Philippines, the Solomon Islands and Timor Leste signed the CTI-RAP.<sup>61</sup> These CTI-6 states envision an “ecosystem-based approach” to protecting marine biodiversity as well as mangroves.<sup>62</sup> However, it should be mentioned this is not a binding treaty and there is no legal obligation.

The Coral Triangle encompasses approximately 6 million square kilometers of ocean-space, including more than half of global coral reefs and nearly all mangroves on earth.<sup>63</sup> The Coral Triangle includes 76% of known coral species.<sup>64</sup> The Coral Triangle is said to act as a “catch-all” for larvae moving towards the region.<sup>65</sup> This catch-all is fed by the South Equatorial Current and the North Equatorial Current. Dispersion away from the Coral Triangle is observed. In all directions away from the

<sup>61</sup> Ibid., pp. 443-444.

<sup>62</sup> Ibid., p. 443.

<sup>63</sup> George and Hussin 2010, p. 444.

<sup>64</sup> Annick Cros et al., “The Coral Triangle Atlas: An Integrated Online Spatial Database System for Improving Coral Reef Management,” *Plos ONE*, Vol. 9, No. 6 (June 2014): p. 1; Simon Foalea et al., “Food security and the Coral Triangle Initiative,” *Marine Policy*, Vol. 38 (March 2013): p. 175; George and Hussin 2010, p. 445 and Veron et al. 2009, p. 91.

<sup>65</sup> Veron et al. 2009, p. 97.

Coral Triangle, waters become increasingly cooler and species diversity progressively decreases, indicating the region is the most diverse marine space in the central Indo-Pacific.<sup>66</sup> All surrounding regions have less species. This tremendous biodiversity is threatened by anthropogenic factors. Indeed, the Reefs at Risk report predicts that 85% of the Coral Triangle's coral reefs are at risk to degradation due to high level of anthropogenic stresses and climate-impacts.<sup>67</sup>

In 2010, scholars reported “One third of the CTI region’s population (approximately 363 million people) is directly dependent on coastal and marine resources for its livelihood”.<sup>68</sup> Four years later, scholars set this figure more conservatively, stating 130 million people “directly depend on these resources for their livelihoods and well-being”.<sup>69</sup> It is reported that 50 million of these people are “poor”.<sup>70</sup> The CTI reports these resources provide “significant benefits to the approximately 363 million people who reside in the Coral Triangle, as well as billions more outside the region”.<sup>71</sup> While there may be some discrepancies with the precise number of

people directly and indirectly dependent on this ocean-space, it is clear that millions of people depend on it for existence. Food security, one of the objectives of the CTI, can be a vague concept. The Food and Agriculture Organization of the UN uses the definition of food security adopted from the World Food Summit of 1996:

Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.<sup>72</sup>

The objective of food security is premised on species conservation on a wide-scale, spanning the waters of six countries.

The CTI-6 states articulated priority areas and specific target sites of focus within the Coral Triangle for each country. In the Philippines, these include sites in Palawan and Tawi-Tawi.<sup>73</sup> The 10-year RAP adopted in 2009 includes nine principles and five overarching goals. Principle 1 states “CTI should support people-centered biodiversity conservation, sustainable development, poverty reduction and

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<sup>66</sup> Ibid., p. 97.

<sup>67</sup> Cabral et al., “Crisis sentinel indicators: Averting a potential meltdown in the Coral Triangle,” *Marine Policy*, Vol. 39 (May 2013): pp. 241.

<sup>68</sup> George and Hussin, 2010., p. 444

<sup>69</sup> Cros et al., 2014, p. 1.

<sup>70</sup> Cabral et al., “Opportunities and Challenges in the Coral Triangle,” *Environmental Science Technology*, Vol. 46 (2012): pp. 7930.

<sup>71</sup> “About CTI-CFF”.

<sup>72</sup> Annabelle Cruz-Trinidad et al., “Linking Food Security with Coral Reefs and Fisheries in the Coral Triangle,” *Coastal Management*, Vol. 42, No. 2 (2014): p. 162.

<sup>73</sup> George and Hussin, 2010, p. 444.

equitable benefit sharing”.<sup>74</sup> Principle 3 states tangible time-tables and quantitative goals should be adopted at the highest-political level.<sup>75</sup> Principle 5 emphasizes aligning CTI initiatives with international conventions while Principle 6 cautions states to recognize transboundary fish stocks and inter-state boundaries. These two principle are particularly relevant to the United Nations Convention on the Law of the Sea (UNCLOS) and the establishment of Exclusive Economic Zones (EEZ). George and Hussin write the CTI operationalizes duties and rights under UNCLOS and the 1992 Convention on Biological Diversity.<sup>76</sup> The five RAP goals include establishing sound investment plans, employing and ecosystem approach to fisheries management, implementing a region-wide Coral Triangle Marine Protected Area System, implement climate-change adaptation and protecting endangered species.<sup>77</sup> Goal 2 specifically mentions a “well-managed and sustainable trade in live-reef and reef-based ornamentals”.<sup>78</sup>

CTI projects manifest in different forms on the ground in different countries. The Philippines focuses on mangrove management and reforestation in the context of climate-change adaptation.<sup>79</sup> USAID Philippines also contributes to local projects.<sup>80</sup> In 2009, the US Department of State sponsored the first of several workshops attended by stakeholders in the Asian LRF trade.<sup>81</sup>

Scholars have argued CTI could more effectively strive to meet its objectives, particularly in relation to food security. Foale et al. point out CTI does not articulate clear strategies to improve food security and how this improvement will be measured.<sup>82</sup> They suggest “a more explicit impact-pathway analysis could guide such thinking”.<sup>83</sup> This involves critically assessing the complex food security-biodiversity conservation linkages before implementing conservation methods.<sup>84</sup> Additionally, they cite the problems posed by the continued need of land reform in the Philippines.<sup>85</sup> Similarly, Cabral et al. suggest the “CT6

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<sup>74</sup> Ibid., p. 445.

<sup>75</sup> Ibid., p. 446.

<sup>76</sup> Ibid., p. 454.

<sup>77</sup> Ibid., pp. 446-447.

<sup>78</sup> Ibid., p. 447.

<sup>79</sup> Ibid., p. 451.

<sup>80</sup> Ibid., p. 451.

<sup>81</sup> Ibid., p. 452.

<sup>82</sup> Foale et al., 2013, p. 175.

<sup>83</sup> Ibid., p. 180.

<sup>84</sup> Ibid., p. 174.

<sup>85</sup> Ibid., p. 180.

would benefit from the establishment of programs that will integrate socioeconomic and ecological outcomes to the CTI-CFF strategies in conjunction with the regular monitoring and evaluation procedures at all governance levels”.<sup>86</sup> Cabral et al. use Crisis Sentinel Indicators (CSI) to outline problems posed by ecological, socio-economic, and governance pressures.<sup>87</sup> They conclude the scores of the CSI reveal three typologies:

- (1) good governance and socioeconomic state with alarming ecological state (Malaysia);
- (2) alarming ecological and socioeconomic state with moderate governance state (Philippines and Indonesia);
- and (3) alarming governance and socioeconomic state with moderate ecological state (Timor-Leste, Papua New Guinea, and Solomon Islands).<sup>88</sup>

They point out countries characterized by lack of food and weak government oftentimes are in a situation of exporting high-level seafood to well-nourished countries with strong governments.<sup>89</sup>

Relatedly, Fabinye et al. write the transnational LRF trade centered on Filipino fishers is an ecologically unequal exchange between Southeast Asia and China.<sup>90</sup> Tellingly, protein consumption involved with dietary energy requirements of Indonesia and the Philippines is below recommended levels.<sup>91</sup>

One crucial objective of the CTI is to facilitate exchanges of technology in real-time between the CTI-6. In 2009, the Coral Triangle Atlas was created with funding from USAID through the Coral Triangle Support Partnership.<sup>92</sup> One principle use of the Atlas is to support the CTI Monitoring and Evaluation Technical Working Group in tracking the progress of the CTI Regional Plan of Action.<sup>93</sup> The Atlas is largely an online GIS database, providing government agencies, NGOs and researchers with spatial data from the CTI-6 countries that is critical to successful implementation of CTI goals.<sup>94</sup> For instance, different GIS layers represent different spatial data such as sea surface temperature, surface chlorophyll concentration and current speed.<sup>95</sup> Interestingly, certain GIS layers represent

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<sup>86</sup> Cabral et al., 2012, p. 7931.

<sup>87</sup> Ibid., p. 242.

<sup>88</sup> Ibid., p. 242.

<sup>89</sup> Ibid., p. 242.

<sup>90</sup> Fabinye et al., 2012, 129.

<sup>91</sup> Cabral et al., 2013, pp. 243-244.

<sup>92</sup> Cros et al., 2014, p. 2.

<sup>93</sup> Ibid., p. 5.

<sup>94</sup> Ibid., p. 6.

<sup>95</sup> Ibid., p. 3.

spatial night light patterns. Despite the potential value of night light distribution, the marine scientific community is only using it recently.<sup>96</sup> Light distribution on land reflects density of human habitation. On ocean-space, “they summarise the distribution of boats, and ships, many engaged in commercial fishing”.<sup>97</sup> Marine scientists are beginning to use this technique to trace fishing patterns in the SCS in an effort to increase knowledge on sustainable fishing patterns.<sup>98</sup>

#### *The Exclusion of the SCS from the Coral Triangle*

The supreme importance of the Coral Triangle only became undeniable within the scientific community in the late-20<sup>th</sup> Century when global coral distributions of species were compiled. Suddenly, the Indonesian-Philippines archipelago was revealed to exceed the biodiversity of the Great Barrier Reef. Consequently, the international focus on coral reef conservation “shifted from the highly regulated World Heritage province of the Great Barrier Reef to the relatively under-studied region to the north, where

reefs were largely unprotected, and where human population densities and consequent environmental impacts were high by most world standards”.<sup>99</sup> The Coral Triangle is not only the home to the largest diversity of coral on earth. An enormous number of people are directly dependent on it for sustenance and livelihoods, increasing the vulnerability of this marine space.

Biogeographic distributions influenced the delimitation of the Coral Triangle. A comprehensive database of GIS-based maps called the Coral Geographic traces biogeographic distributions which influenced the current delimitation of the Coral Triangle as administered by CTI.<sup>100</sup> The database includes maps of zooxanthellate coral distributions that can be analyzed to compare geographic regions and trace patterns of diversity.<sup>101</sup> This data seems to demonstrate each of the sub-regions of the Coral Triangle have more than 500 species.<sup>102</sup> This is the litmus used to incorporate or not incorporate a specific marine region into the ocean-space targeted by the CTI.<sup>103</sup> According to Veron et al., 2009, the SCS region falls shy of this benchmark with 435 species.<sup>104</sup> However,

<sup>96</sup> Ibid., p. 4.

<sup>97</sup> Ibid., p. 4

<sup>98</sup> Rollan Geronimo, PhD student in the Geography Department, UH Mānoa, is doing this.

<sup>99</sup> Veron et al., 2009, p. 92.

<sup>100</sup> Ibid., p. 93.

<sup>101</sup> Ibid., p. 93.

<sup>102</sup> Ibid., p. 95.

<sup>103</sup> Alison L. Green and Peter J. Mous, “Delineating the Coral Triangle, its Ecoregions and Functional Seascapes,” *Version 5.0. TNC Coral Triangle Program*. Report No 1/08, September 2008, p. 5 and Veron et al., 2009, p. 95.

<sup>104</sup> Veron et al., 2009, p. 94.

Green and Mous 2008 assert a different justification for excluding the SCS from the CTI. They write the “Spratly Islands were not included, because the limited anecdotal information available indicated that the high biodiversity of the Coral Triangle does not extend west to this area”.<sup>105</sup>

This nuanced distinction in justifications for excluding the SCS is troubling. The former seems to assert an extensive knowledge of the coral species diversity in the SCS. After all, 435 seems like an exceedingly specific figure. Despite this, Green and Mous depict the information on the SCS as embryonic, referring to it as “limited anecdotal information”. It is difficult to imagine how “limited anecdotal information” could result in the precise figure 435.

These seeming contradictions seem to challenge the validity of the reasoning for excluding the SCS. Green and Mous write that due to a lack of data for many of the sites in the region, “these boundaries were considered a hypothesis for future research, rather than a final product”.<sup>106</sup> For example, the CTI boundary was moved further east to include the main island of the Solomon Islands following the Solomon Islands Marine Assessment.<sup>107</sup> Increasing knowledge of the SCS could reveal a significantly higher diversity of coral, raising the possibility of formally including it in the CTI. However, the increasing geopolitical

tension involved with the Spratly Islands diminishes the likelihood that a comprehensive observation of species diversity will occur.

The primary criteria for determining the boundary of the Coral Triangle is species diversity, oceanography, and currents.<sup>108</sup> Secondary criteria include geomorphology, bathymetry, sea level fluctuations, and habitat type. Criteria explicitly excluded were plate tectonics and socioeconomic factors. However, one could speculate political factors were considered when deciding on the exclusion of the SCS, especially considering the uncertainty surrounding the number of coral species in the region.

### **Conclusion: The Politics of Excising the SCS from the CTI**

The exclusion of the SCS from the CTI target region seems questionable. The figure of 435 species indicates tremendous biodiversity. Most other regions of the globe fall well short of the species diversity of the SCS. Furthermore, it is ocean-space contiguous to the region targeted by the CTI, making including this region theoretically feasible logistically. The North Philippines region is reported to have 510 species while the Southeast Philippines region has 533. The most significantly biodiverse region is Raja Ampat/Bird’s

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<sup>105</sup> Green and Mous, 2008, p. 4.

<sup>106</sup> *Ibid.*, p. 2.

<sup>107</sup> *Ibid.*, p. 8.

<sup>108</sup> *Ibid.*, p. 4.

Head Peninsula with 553 species.<sup>109</sup> The relatively similar extent of biodiversity in the SCS warrants rethinking the CTI target area.

One could speculate the SCS was excluded because the region is riddled with spatial and political disputes. Along this line of thought, including this geopolitically tumultuous seascape could have been seen as endangering the efficacy of CTI generally. This fear has validity. Despite this, excluding the SCS has profound ecological, economic, and political consequences for Filipino communities and Southeast Asia, in general. Myriad factors threaten the environmental durability of this

bioregion. This includes the continued use of cyanide and dynamite among local small-scale fishers as well as unregulated harvests by large-scale fishers hailing from distant ports. The megalomaniacal militarization efforts of China pose different threats—the systematic destruction of coral reefs to create artificial islands. Inclusion of the SCS in the CTI targeted area could increase public awareness of these destructive practices and increase international condemnations of increased militarization of this fragile ocean-space. Fishers in southern Palawan traverse multiple, overlapping geographies. This article puts a human face to these multiple geographic imaginaries.

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<sup>109</sup> Ibid., p. 95.

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