

A young man with dark skin and curly hair, wearing a bright blue t-shirt, is standing on the edge of a weathered wooden boat. He is pulling a fishing net that extends into the water. The boat has peeling white and blue paint. The water is dark blue, and a large crab is visible underwater, caught in the net. The sky is a clear, vibrant blue.

# The Case for Precompetitive Collaboration

A Study of the  
NFI Crab Council

**March 2019**



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## EXECUTIVE SUMMARY

The National Fisheries Institute (NFI) Crab Council (CC or Council) is a unique industry-led association focused on securing the sustainability of the blue swimming crab (BSC) in Southeast Asia; members accounted for approximately 62% of all blue swimming crab imports to the U.S. from Southeast Asia in 2017. It represents a strong coalition of industry leaders committed to ensuring the long-term viability of this fishery, and, by extension, their respective businesses and the communities that depend on this resource for their livelihoods.

Formation of the Council stems from lessons learned in the Chesapeake Bay, where overfishing resulted in the collapse of the crab fishery. Industry leaders recognized the imperative need to collectively address the challenges of overfishing and general fishery mismanagement, such as systemic harvest of egg-bearing crabs and juveniles; improper use of fishing gear; and habitat loss in Southeast Asia, before these issues began impacting supply and, ultimately, the profitability of their businesses. This resulted in the formation of the Crab Council at the National Fisheries Institute, and the strategy that members of the Council would make voluntary financial contributions to establish a pool of funds necessary to invest in fishery management interventions and the overall future of the fishery.

*“Based on our extensive experience in the Chesapeake Blue Crab fishery, we decided to be proactive about sustainability in South East Asia when we expanded into these countries. Phillips Seafood led the way in encouraging the formation of processor associations in the new source countries, specifically to address the threats of overfishing and supported the formation of the Crab Council to engage the industry.”*

– Steve Phillips, CEO and Founder, Phillips Seafood<sup>1</sup>

Each CC member contributes a payment based on their total annual pounds of BSC product imported into the U.S. These pooled funds are used to implement Fishery Improvement Projects (FIPs) in source countries in Southeast Asia. Over the past eight years, as more firms have joined the Council, these funds have increased, based both on the total volume of crab and the fee levied to members, resulting in over \$2.1 million invested in Southeast Asia by the end of 2017.

This unique collaborative model, in an otherwise fragmented industry, provides an opportunity to develop a long-term funding mechanism to address the costs of fisheries management reform in multiple countries.

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<sup>1</sup>Steve Phillips. Personal Communication. 14 February 2018.

## Achievements

Guided by professional technical staff, which include a marine biologist as their Executive Director, the CC has secured several significant achievements since its formation. Notable is their unique, industry-funded model, based on pre-competitive relationships amongst U.S. importers, which has supported in-country associations in implementing sustainability initiatives. One of the significant results of their support has been development and governmental adoption of national BSC fishery management plans in Indonesia, the Philippines and Thailand.

## Lessons Learned

The collaborative approach adopted, and the resources raised by the Council are notable demonstrations of the industry's ability to raise funds for FIPs and contribute to investments in stock health and fishery management. Industry has provided the resources that traditionally would have come from government and philanthropic sources. Working in tandem with in-country partners to ensure acceptance and adoption, the CC has established a funding mechanism that may be relevant to other seafood sectors in addressing the funding deficit associated with fishery management, monitoring and enforcement. This approach is particularly relevant as the CC realizes that the local and national governments may not be able to muster the political will or monetary resources needed to enforce rules in artisanal fisheries. This is a major concern in this fishery and others. Finally, the Council recognizes that good data is key to improved sustainability, especially considering the impending Seafood Import Monitoring Program (SIMP) requirements, as it plays an important role in tracking the progress of key performance indicators (KPIs).

## Challenges

Despite these achievements, significant challenges remain. A lack of data at the fisher and first buyer level (vessel tracking, gear types used, fishing locations, and landing compositions) represents a significant risk to effectively assessing sustainability and ultimately managing these fisheries. This lack of data constrains enforcement of harvest controls, such as prohibiting the landing of undersized and berried crabs, at landing sites. In the absence of such data, demonstrating whether the investments in FIPs have resulted in improved stocks or in achieving KPIs is challenging. Equally, the lack of standardized product grades in the U.S. means that identifying declines in meat quality over time, an indication of overfishing, is nearly impossible. Crab Council member companies stressed that though the overall import quantities appear stable, they mask a deterioration in the composition of imports, particularly in the jumbo and colossal meat products.

Under the current circumstances, end market buyers have not yet been exposed to stock deterioration. They have adopted appropriate practices to protect their commercial positions for the time being, and typically purchase from firms with a track record of reliable supply, who in turn have greater access to product. It may be argued that by the time the end market buyers do experience the deterioration currently being experienced by smaller CC firms and processors, it may be too late for stocks to recover.

## Opportunities

Though not yet attained, the CC has established the necessary funding structures, relationships and capacity to secure success “at the water’s edge”. Future opportunities to capitalize on this baseline include standardizing crabmeat grades and improving data collection across all sourcing countries to understand and address stock health concerns. Simultaneously, improving product traceability and directly engaging harvesters to improve harvest control strategies and meet both customer demand and policy requirements around illegal, unreported and unregulated (IUU) are essential. These efforts, while costly, can be achieved by establishing more meaningful – comprehensive – FIPs and a more robust funding structure by the Council, enabling the industry to better address the significant resource challenges at the heart of the supply chain.





## Conclusion

The NFI Crab Council occupies a unique and enviable position in the context of international seafood supply chains—their membership represents most U.S. imports of Southeast Asian BSC, and they have agreed to a self-assessed fee to fund the fishery improvement activities of the organization and their in-country partners. Their membership level gives them leverage in the supply chain, which they are using to push for improved sustainability. Despite the high levels of time and money invested, the relationship between these investments, supply, and price volatility is unknown; given the current data challenges, correlating CC FIP investments and decreased price and/or supply volatility is not possible at this time.

**Indeed, despite perception to the contrary, analysis by Vivid Economics<sup>2</sup> and the available data indicate that import volumes are declining and prices are increasing across all meat grades, indicating overfishing.** While end market buyers may not perceive price or supply challenges at this time due to their purchasing practices, which largely inoculate them from price shocks, it may be too late for the fishery to recover when they ultimately experience the challenges currently being faced by smaller BSC suppliers.

Nonetheless, the CC model provides a valuable precompetitive platform to aggregate practices and capital to address sustainability at scale. We propose that the CC engages in the ongoing discussions around the development of a FIP 2.0 framework, which would include a focus on “change on the water”, utilizing a more robust funding structure that can achieve sustainability.

Addressing the opportunities identified herein would also improve consumer trust in the NFI “Committed to Sustainability” brand, allow improved financing, data aggregation and supply chain enforcement of rules, while meeting U.S. seafood import policy requirements.



<sup>2</sup>“The impact of blue swimming crab fishery management for the profitability of US buyers.” Vivid Economics. May



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## INTRODUCTION

When demand outpaces supply, competitive businesses race to find a way to meet demand, either through producing more, shifting demand to substitutes, or both. Over 34,500 metric tons of canned or frozen crabmeat were imported into the U.S. in 2016<sup>3</sup> and, by industry accounts, they could have sold even more if prices stabilized. Until the 1990s, most crabmeat consumed in the U.S. came from domestic sources, but when those were overfished, suppliers started exploring other countries for substitutes. Southeast Asia was and has been the focus of efforts, and when those fisheries began to show similar signs of decline as experienced in U.S. crab fisheries like the Chesapeake, companies realized they needed to act.

Recognizing the complexity of the value chain—open access fisheries in numerous countries with variable geography, cultures and levels of management and enforcement—industry leaders knew acting individually would have little impact, and that collaboration between the importers was needed. Focused primarily around sustainability concerns and practices, this “pre-competitive collaboration” provided a way for crab importers to act collectively to address raw material supply concerns. Thus in 2009, U.S. crab importers formally banded together under the National Fisheries Institute Crab Council (CC or Council) to support efforts to improve supply sustainability in their source countries.

With the support of local and international partners, the CC funded the development of fishery improvement projects (FIPs) in the primary sourcing countries, providing a development framework to engage the entire value chain.

*“We have a responsibility at our end as the importers, processors, and marketing companies, to actually fund some of that work; and the only way you can do that is collaboratively.”*

– John Connelly, National Fisheries Institute<sup>4</sup>

## Scope and Purpose of Case Study

This case study of the CC model documents the concept of pre-competitive collaboration around sustainability and in particular, their industry-funded fishery improvement model; noting successes and learnings as well as opportunities and threats to the firms in the Council as they relate to sustainability. Where available, primary-level data from suppliers was analyzed against stock data taken from blue swimming crab (BSC) fishery improvement project records. We sought evidence to demonstrate that companies who source products from sustainably managed fisheries and invest directly in their recovery and stabilization have better business and risk profiles for financial investment.

<sup>3</sup>National Marine Fisheries Service (2017) Fisheries of the United States, 2016. U.S. Department of Commerce, NOAA Current Fishery Statistics No. 2016. Available at: <https://www.fisheries.noaa.gov/resource/document/fisheries-united-states-2016-report>

<sup>4</sup>“Pre-Competitive Collaboration in Seafood.” SeaWeb. Website accessed 28 February 2018. <http://speakingofseafood.org/pre-competitive-collaboration/>

Related, but separate, the negative business impacts for seafood buyers and suppliers sourcing product from unsustainably managed fisheries has been documented by an economic data analysis firm, Vivid Economics<sup>5</sup>. This case study document should be read in conjunction with the report from Vivid Economics.

## Key Case Study Questions

1. Why and how was the Crab Council formed?
2. What are the successes and learnings?
3. What are the opportunities and threats?
4. Can we show a correlation between the NFI Crab Council's investment in the SE Asian BSC FIPs and fishery stabilization? How? Is the ROI quantifiable back to the businesses? Can we show that pre-competitive collaboration on sustainability at industry level is a positive and profitable business model?

## Methodology

The case study was undertaken via document reviews and a series of interviews with the NFI CC's founding and current members; CC staff and former staff; and BSC buyers in the U.S.



## BACKGROUND: CRAB COUNCIL HISTORY

Blue crab (*Callinectes sapidus*) fisheries have been an important part of the economy and culture of the East Coast of the U.S. for at least 100 years; however, as their abundance wavered over the decades<sup>6</sup>, international sources of substitutable crabs (particularly *Portunus pelagicus* from Southeast Asia) have been incorporated into the crab supply chain. At least as early as 2004, processors noted declines in abundance and size of imported crabmeat, although these declines were not yet affecting supply or prices. In 2007 and 2008, in-country processors in Indonesia and Philippines formed associations with encouragement from U.S. importers—the Asosiasi Pengelola Ranjungan Indonesia (APRI) and Philippine Association of Crab Processors, Incorporated (PACPI). These groups, along with counterparts in India, Sri Lanka, Thailand and Vietnam, now manage FIP implementation with in-country conservation partners and integrate local cultures into sustainability discussion. In 2009, nine U.S. importers and three Southeast Asian packers formed their own organization—the Crab Council—to organize and engage industry stakeholders to promote sustainability efforts and support in-country processor associations<sup>7</sup>.

From the CC 2010 business plan, outlining their initial decisions to jointly invest in the fishery: *“U.S. importers have grown concerned that the fishery appears to be in decline. The average size of BSC harvested has dropped, and the fishermen report a lower catch per unit effort. There are signs of probable overfishing, but other abuses such as the systematic harvest of egg-bearing female crabs and juveniles, improper use of fishing gear and habitat loss are likely contributing to the declines as well. In order to remedy the situation and put effective management in place the industry needs to have a full understanding of the crab stocks, their biology and ecology, and of the fishery. It is these concerns and needs that led to the formation of the Crab Council with the goal of assisting the blue swimming crab fisheries in Asia advance to sustainability.”*

<sup>5</sup>“The impact of blue swimming crab fishery management for the profitability of US buyers.” Vivid Economics. May 2018.

<sup>6</sup>“Pre-Competitive Collaboration in Seafood.” SeaWeb. Website accessed 28 February 2018. <http://speakingofseafood.org/pre-competitive-collaboration/>

<sup>7</sup>NFI Crab Council Business Plan. March 2010.



## Timeline

<b>2004</b>	Philippines realizes declining catch volumes and crab size
<b>2007</b>	APRI formed
<b>2008</b>	PACPI formed
<b>2009</b>	CC formed
<b>2010</b>	CC BSC Sustainability Business Plan completed
<b>2011</b>	WWF - NFI Vietnam partnership; acceptance of FIP by government
<b>2012</b>	<ul style="list-style-type: none"> <li>• Walton Grant for the CC Asia Liaison</li> <li>• Thai Fisheries Dept completed draft of sustainability Master Plan</li> <li>• Indonesia reaches FIP stage 3</li> <li>• Philippine BSC Management Plan approved</li> </ul>
<b>2013</b>	<ul style="list-style-type: none"> <li>• ASEAN FIP protocol announced by NFI</li> <li>• Sri Lankan and Thai FIPs formally approved</li> </ul>
<b>2016</b>	<ul style="list-style-type: none"> <li>• NFI forms a Labor Task Force</li> <li>• Indonesian Ministerial Decree establishing the fishery management plan for BSC</li> </ul>
<b>2017</b>	4 additional members added to the CC; including Seafood America, the 1st non-importer

**Table 1** – CC Timeline

## Business Plan Summary

To support the sustainability efforts, the CC incorporated as a non-profit group that follows the bylaws of the NFI; NFI provides administrative support. There are thirty-four members as of March 2018<sup>8</sup> (see Appendix 2 for member list), and three classes of memberships:

- **Regular Member** shall be a company which produces, processes, imports or markets crab products. A Regular Member will serve as a Council member with the right to one vote. *Regular members pay a quarterly assessment of 2¢ per pound for all blue swimming crab imported into the U.S.*
- **Contributing Member** shall be a company engaged in supplying service or products other than crab to Regular Members. Contributing Members have no voting rights and pay a flat annual fee of \$1000.
- **Affiliate Organization Member** shall be a trade association, or similar organization of companies engaged in production, processing, or marketing of crab products. Affiliate Organization members have no voting rights and pay a flat annual fee of \$500.

The CC is managed by an executive committee of five regular members. In-country associations provide a minimum of 10% of the funds necessary for their individual FIPs.

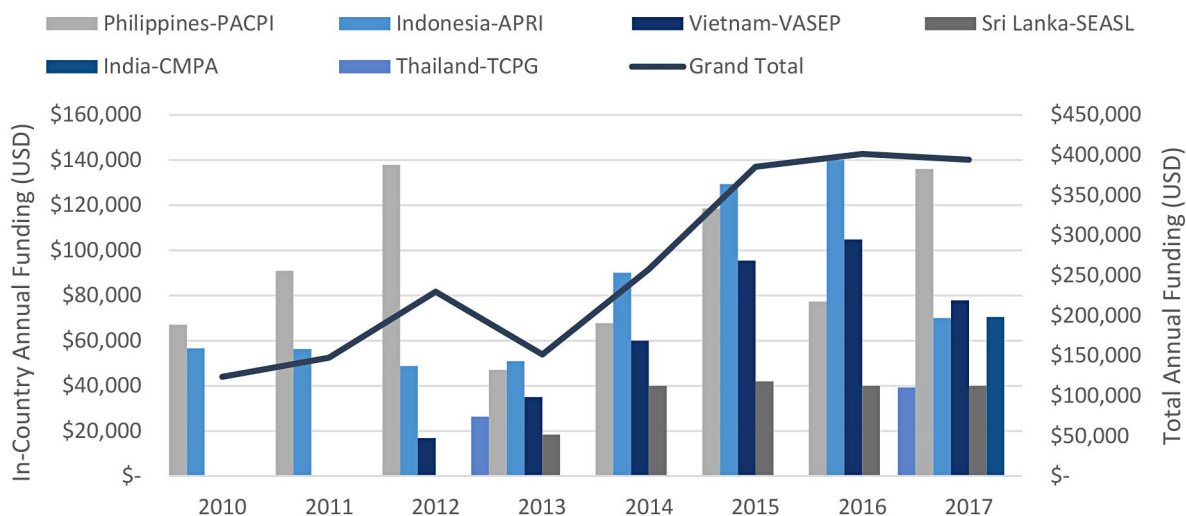
## Funding Structure

A unique component of the CC structure is the voluntary financial contribution by its members based on the volume of their BSC imports to the U.S. These funds are used to support the development of sustainability initiatives in each of the source countries by the in-country processor associations. Initially established at 1.5¢ per pound in 2010, this self-levied fee was increased to 2¢ in 2016. Over the past eight years, this funding structure has resulted in a \$2.1 million-dollar investment in BSC FIPs in Southeast Asia by the CC.

<sup>8</sup>“Crustacea Seafood Company Joins Crab Council”. February 15, 2018. <http://www.committedtocrab.org/news/>

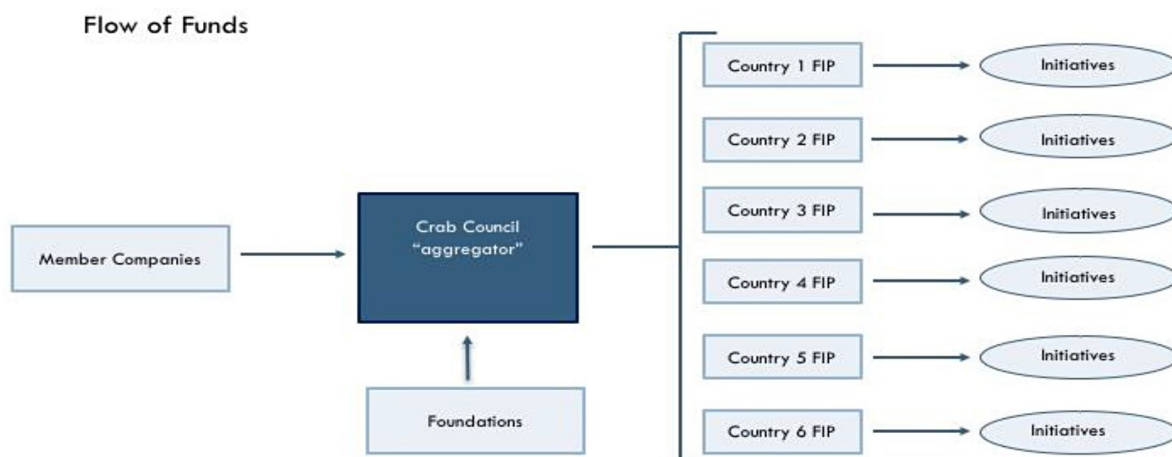
*“Industry leaders recognize the need to invest directly in improved fisheries management in our source countries. We recently increased the investment to 2¢ per pound to better address in-country challenges for sustainable, traceable and socially equitable sourcing.”*

– John Keeler, Blue Star Foods<sup>9</sup>



**Figure 1** – In-country historical funding by the CC<sup>10</sup>

Beginning with a modest budget of close to \$100,000 in 2010, which was invested in FIPs in Indonesia and the Philippines, the Council’s annual funding budget has grown to approximately \$400,000 per year. These funds are now invested in FIPs across Southeast Asia that are managed by the in-country processor associations, such as APRI. Figure 1 graphs the amounts invested in each of the organizations responsible for in-country FIPs. As indicated in the graph, by 2017 FIPs in six countries were being funded through the industry-levied fee: Thailand and Sri Lanka at approximately \$40,000 each; Indonesia, Vietnam and India at approximately \$60,000 each; and the Philippines at nearly \$140,000 in 2017.



**Figure 2** – Current CC Model

<sup>9</sup>Personal Communication. John Keeler. May 2018.

<sup>10</sup>Personal Communication. Ed Rhodes. April 2018.



All funds raised through this mechanism are pooled and deployed in response to requests for proposals that are prepared and presented by the respective country associations for FIP implementation. Based on an MSC pre-assessment, each country's processor association is responsible for the preparation of an annual FIP budget and responds to the RFP to implement the management measures identified. Once reviewed, the CC executive presents these grants to the entire membership for review and approval. The pooled funds are then allocated to respective country FIP initiatives.

CC members are also members of NFI. NFI staff time is not paid for from the Council assessments. Dr. Ed Rhodes, Executive Director of the CC, and Dr. Abdul Ghofar, Envoy for Asia, work as contractors to the CC and all their activities are in support of the FIPs; they do not work on any other projects.<sup>11</sup>

## FIPs

FIPs are the main mechanism used by the CC to support fishery improvements. The Conservation Alliance for Sustainable Seafood (CASS) defines a FIP as “a multi-stakeholder effort to address environmental challenges in a fishery. These projects utilize the power of the private sector to incentivize positive changes toward sustainability in the fishery and seek to make these changes endure through policy change.”<sup>12</sup>

As defined by CASS, a FIP requires the following:

1. Active participation of supply chain companies and other stakeholders (e.g., government, NGOs, academics, fishery managers, producer representatives)
2. Public commitment to the FIP and to invest (monetary or in-kind) in its execution
3. Objectives must be identified and time bound
4. A workplan must be developed to achieve the objectives
5. Progress must be tracked, documented, and publicly reported

*“There is a growing appreciation that the needs of fishers and their communities must be addressed in order to improve the underlying causes of fishery exploitation in the developing world, particularly for small-scale fisheries. If the next generation of FIPs extends the engagement strategy down to the fisher-level, it will be more involved and resource-intensive than the traditional model, but may be more likely to succeed in these challenging geographies”*

– CEA Consulting, “Global Landscape Review of FIPs”<sup>13</sup>

Using time as a measure of FIP success and progress against the MSC standard, the BSC FIPs in Southeast Asia are behind other FIPs in terms of progress towards sustainability. Given the nature of the supply chain (diffuse and long) and the relative lack of governance and enforcement in the target fisheries, this perceived lack of progress seems to be par for the course. The Council has partnered with Sustainable Fisheries Partnership (SFP) and World Wildlife Fund (WWF) to facilitate FIP implementation with respective in-country partner organizations. This has allowed the CC to have an in-country implementer, one of the key drivers of success, per CEA<sup>14</sup>. However, FIP engagement remains largely in the middle of the supply chain at the processor level and does not extend down to the fisher level which, as noted above, will be necessary for success.

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<sup>11</sup> Personal Communication. Ed Rhodes. April 2018.

<sup>12</sup> “Guidelines for Supporting Fishery Improvement Projects”. Conservation Alliance for Sustainable Seafood. March 2015. <http://solutionsforseafood.org/wp-content/uploads/2015/03/Alliance-FIP-Guidelines-3.7.15.pdf>

<sup>13</sup> March 2018 from: <https://www.ceiconsulting.com/wp-content/uploads/Global-Landscape-Review-of-FIPs-Summary.pdf>

<sup>14</sup> Ibid.

## Blue Swimming Crab Data

In determining the impact of investments to ensure supply of raw crab stabilizes, three data points are important to know:

1. Landings by CC source countries
  - Blending of crab species (*P. haanii* and *P. pelagicus*) has been widely reported based on stock availability and is challenging to manage
  - Meat composition (jumbo, special, etc.) provides a proxy for crab sizes – larger crabs provide larger pieces of meat.
  - Landing data by location can indicate new landing locations and whether landings are declining. This provides an indication of stock health, especially if the data is cross-referenced with meat composition or crab size.
2. Proportion of U.S. imports from CC members vs. non-members.
3. Proportion of total BSC exports from each country going to the U.S. vs. other countries.

Knowing the proportion of the market that is attributable to CC members indicates the magnitude of the impact of their actions on supply. That is, if the CC accounts for a very small portion of the market in a source country, their actions would have little effect.

## Data Gaps

Our project partners at Vivid Economics were able to find and analyze the data for two of the three main points above, with the exception of the last: BSC export destinations from each source country. While U.S. import data by country is available, export level data from each country was not available on a country by country basis, and thus it was not possible to cross reference datasets. Without the data available for the last point, it is not possible to understand the level of influence of the CC member-affiliated processors in the source country. While several country specific initiatives have been developed over the years, including in Sri Lanka, Vietnam and Indonesia, these tended to be location specific and temporary in nature with minimal subsequent follow up and use of the data for management.

The meat composition and landings data by location is something that is not generally recorded, although Blue Star Foods is piloting a mobile app to do so, and the CC is testing a paper-based Control Document with similar goals. This allows their fishers (and the rest of the value chain) to know where undersized and berried crabs are being landed. Without meat composition and landings locations, the data resolution does not provide enough detail to indicate stock health. Production may be remaining stable, but this potentially masks changes in the geography of fishing areas that are the result of fishers expanding their fishing territories, or a decrease in landing sizes, i.e., total weight produced may be the same, but more, smaller, crabs are needed to fill demand.



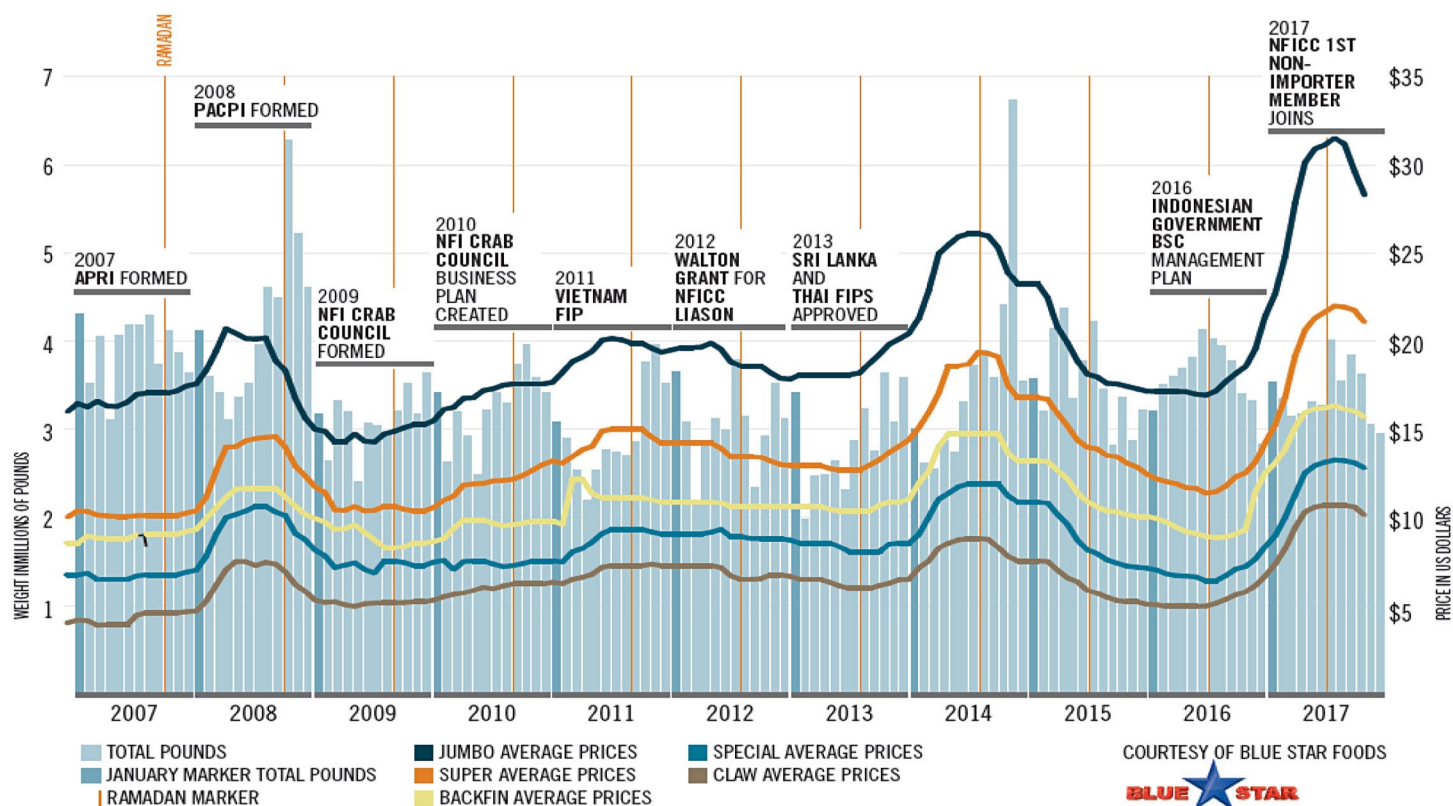
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Data points	Known or Partially Known	Unknown
Domestic consumption		X
Domestic consumption by species and product type		X
Domestic consumption by high, medium and low quality		X
Value of exports by species	X	
Value of species by size/quality	X	
Numbers of full-time artisanal fishers or vessels		X
Numbers of part-time artisanal fishers or vessels		X
Location of catch		X
Volume of landings by gear type and species	X - in select locations	
Value of landings by gear type and species		X
Discards		X
Bycatch rate by species	X - in select locations	X
Waste/Spoilage due to poor onboard conditions		X
Waste/Spoilage due to poor shore-based infrastructure		X
Numbers of shore-based aggregators		X
Number of mini-plants, services provided, locations, volumes processed, etc.	(might be known by individual companies)	X

**Table 2** – Unknown and unmeasured indicators

The paucity of landings data across the various countries in this fishery presents a significant challenge in assessing stock health. Reliable landings data are not available for this fishery across the various source countries, and efforts to collect data have been piecemeal and disjointed to date. In the absence of this data, value chain participants are forced to estimate stock health based on existing data sets, which are imprecise at best. The most accurate data on volumes and values originate from U.S. import data.



**Figure 3** – U.S. import weight, price, and significant CC events, 2007-2017

## Country Details

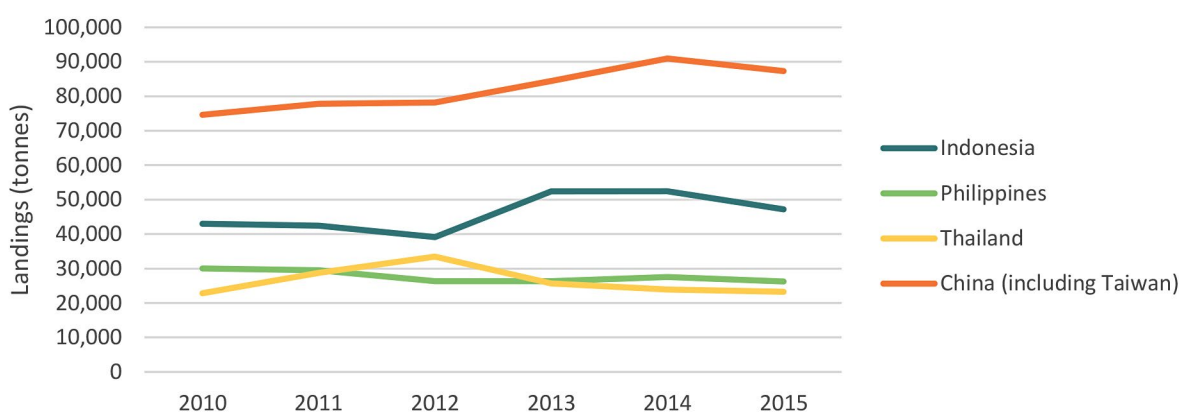
Country	2016 US Imports from NFI Members* (lbs)	2016 US Imports from non- NFI Members* (lbs)	FIP Partners	FIP Inception Year	Number of Harvesters or Vessels (estimated)
Indonesia	12,949,448	11,077,837	Asosiasi Pengelolaan Rajungan Indonesia (APRI) BSC Indonesian Processor Association	2007	65,000 harvesters
Philippines	4,760,377	2,506,399	Philippine Association of Crab Processors (PACPI)	2010	20,000 vessels <sup>15</sup>
Vietnam	2,496,766	1,738,224	Crab Council of the Vietnam Association of Seafood Exporters and Producers (VASEP) in partnership with the WWF-Mekong	2011 <sup>16</sup>	20,000 harvesters <sup>17</sup>
Sri Lanka	663,277	0	Seafood Exporters Association of Sri Lanka (SEA SL)	2013	7,000 vessels <sup>18</sup>
Thailand	538,963	721,333	Thai Crab Products Group (TPCG) part of Thai Frozen Foods Association	2013	25-30,000 vessels <sup>19</sup>
India	2,743,370	283,952	Crab Meat Processors Association	2017	19,905 harvesters <sup>20</sup>

**Table 3** – In-country processor associations

\*NFI Members lists can be found in Appendix B.

## Landings by CC Source Countries

The FAO FishStat<sup>21</sup> database has the quantity of BSC landings for Indonesia, Philippines, Thailand, and China, including Taiwan. BSC is not distinguished from other marine crab or crustacean landings for Vietnam, India, or Sri Lanka and is not included in the table below.



**Figure 4** – FAO reported BSC landings (tonnes)

<sup>15</sup> PACPI Accomplishment Report for 2015-2017

<sup>16</sup> FIP pre-assessment September 2009. Government acceptance of FIP in December 2011. Vietnam BSC FIP Progress 10-07-2012.docx

<sup>17</sup> "Vietnam blue swimming crab". Retrieved 13 March 2018 from: <https://fisheryprogress.org/fip-profile/vietnam-blue-swimming-crab-bottom-gillnetpottrap>

<sup>18</sup> Sri Lankan Blue Swimming Crab Fishery Assessment May 2014. Retrieved from 13 March 2018 from: <https://www.aboutseafood.com/sites/all/files/Sri%20Lankan%20Blue%20Swimming%20Crab%20Fishery%20Assessment.pdf>

<sup>19</sup> MSC Thailand Pre-Assessment Feb 2012. Retrieved 13 March 2018 from: [http://www.committedtocrab.org/wp-content/uploads/2015/02/MSC\\_Pre-Assessment\\_Thailand-blueswimming-crab\\_2Feb2012-1.pdf](http://www.committedtocrab.org/wp-content/uploads/2015/02/MSC_Pre-Assessment_Thailand-blueswimming-crab_2Feb2012-1.pdf)

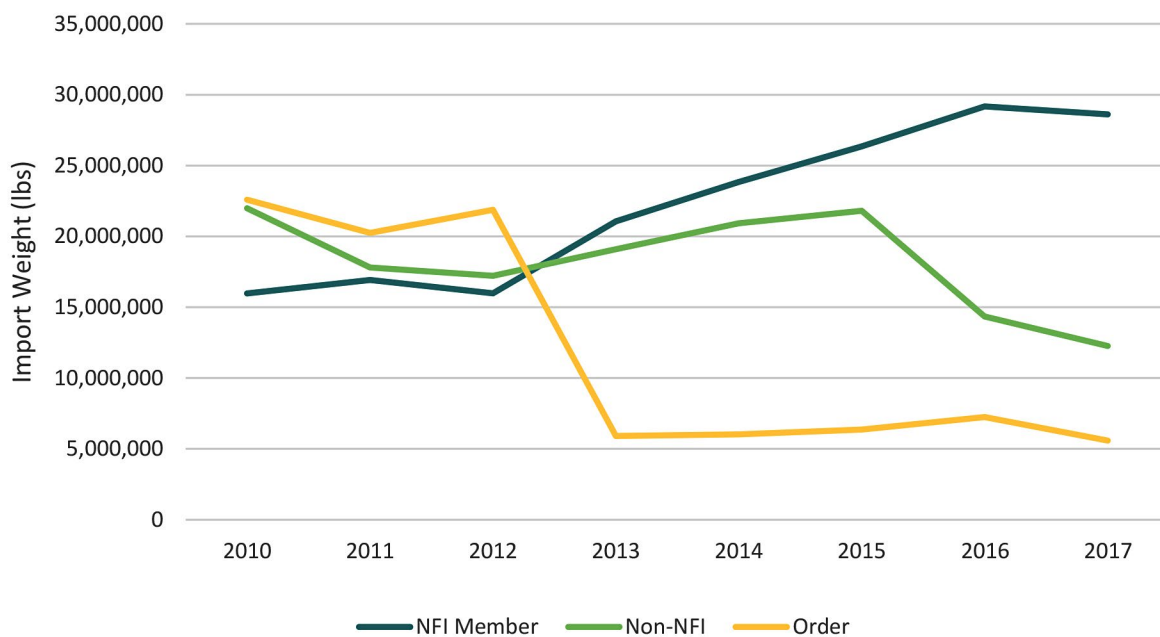
<sup>20</sup> Ed Rhodes. Personal Communication. 22 March 2018

<sup>21</sup> Fisheries and aquaculture software. FishStat Plus - Universal software for fishery statistical time series. Bibliographic citation [online]. Rome. Updated 14 September 2017. [Cited 15 March 2018]. <http://www.fao.org/fishery/>



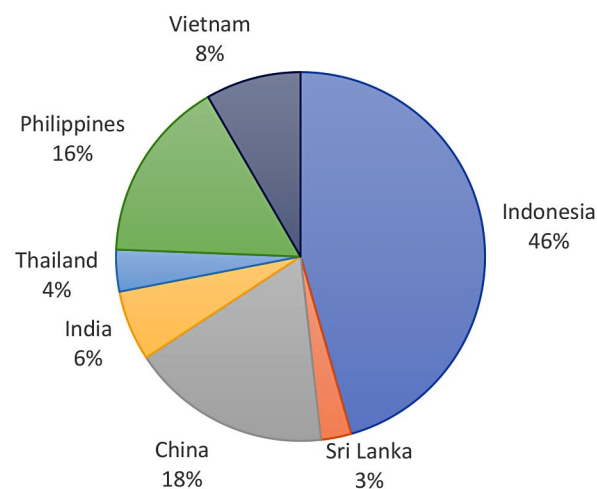
## Proportion of U.S. Imports of CC Members vs. Non-members

Per analysis by Vivid Economics of import data provided by Urner Barry, the ratio of U.S. imports by CC members to non-members has been rising since 2013. Importers can choose whether to disclose their information on U.S. Customs Declarations forms – those choosing not to identify themselves have their shipments assigned to the importer category “Order” instead of being distinguished by name, effectively obscuring the name of the importer of record for the shipment. In 2013, the number of shipments not identified with importer names decreased and has remained relatively low. In 2013, the amount of shipments that could be attributed to CC members eclipsed those of non-members, and in 2015, the amount of non-member shipments began decreasing. Since 2010, non-NFI-member amounts have decreased by approximately 10 million pounds while NFI member orders have increased by slightly more.



**Figure 5** – U.S. BSC imports (pounds) identified as order, CC member or non-member

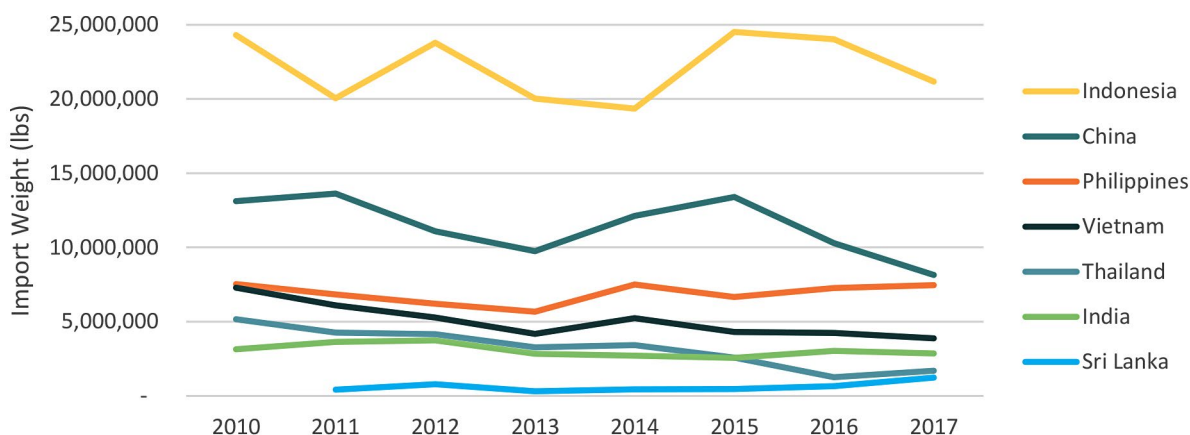
In the Southeast Asian countries with existing or developing FIPs (China, India, Indonesia, Philippines, Sri Lanka, Thailand, Vietnam) it has only been since 2016 that U.S. imports from CC members has eclipsed those of non-members.



**Figure 6** – 2017 U.S. Imports (pounds) of BSC from Southeast Asian countries

Figures are based on Urner Barry data and include only countries accounting for more than 1% of imports, by weight, from Southeast Asia to the U.S.

Imports to the U.S. of pasteurized crab have historically been, and continue to be, dominated by imports from Indonesia, China and the Philippines (2010 to 2017 averages were 42, 22 and 13%, respectively). Between 2010 to 2017, the proportion of crab from Thailand and Vietnam in this set of seven countries has collectively decreased by 9% of the U.S. imports (from 9 and 12% to 4 and 8%, respectively) while Sri Lanka increased from less than 1% to nearly 3% by 2017.



**Figure 7** – U.S. imports (pounds) of BSC from countries with active CC member-affiliated FIPs

Neither we nor Vivid Economics was able to find complete data on the proportion of processed product from each country that enters the U.S. market, but we did find a few pieces of indicative data. The U.S. is the single largest market overall for BSC products, with some regional variations. For example, Singapore is the primary market for Sri Lankan BSC products, with export amounts to the U.S. ranked second<sup>22</sup>. VASEP (Vietnam Association of Seafood Exporters and Producers) lists the U.S. as having been the number one destination for crabs (which likely includes other crab species in addition to BSC) at 48% of 2017 exports, followed by Japan and the EU at 20% or less<sup>23</sup>.

## FINDINGS

Most members recognize the unique nature of the Council and its funding mechanism in a traditionally fragmented market. They share a positive view of the structure and model of the CC, recognizing their investment as good for the long-term prospects of their business as it allows them to collectively address fishery management issues that no individual company could address alone.

Despite these positives, no members were able to affirm correlation between FIP implementation and reduced supply chain volatility in the respective countries. In most cases, the sentiment was that determining correlation was premature, and attributing any stabilization to the work of the Council, either in good years or bad, would be difficult. On the contrary, CC members reported price and supply volatility had increased in the last five years, and that the oscillations were becoming both more severe and frequent. Vivid Economics validated this assertion in their analyses, which indicate **BSC import volumes have declined by 13% over the past ten years, and the declared price per pound has increased by 38% between 2010 and 2017**<sup>24</sup>. Due to the lack of standardized meat compositions and poor data throughout the fishery, the perception of stability in imports masks a deterioration in meat standards, as greater numbers of small size crabs are swept up across the region.

The same report goes on to point out *“the spread in price between meat from large, mature crabs and smaller crabs has widened by 23% in ten years, with Claw-Jumbo spread jumping from \$14.25/lb in 2007 to \$17.59/lb in 2017. This is consistent with a squeeze on mature crab supply, and a sign of overfishing.”*

<sup>22</sup> Sri Lankan Blue Swimming Crab Fishery Assessment May 2014. Retrieved from 13 March 2018 from: <https://www.aboutseafood.com/sites/all/files/Sri%20Lankan%20Blue%20Swimming%20Crab%20Fishery%20Assessment.pdf>

<sup>23</sup> “Vietnam Crab Exports 2017.” VASEP. 9 February 2018. Retrieved on 12 March 2018 from: [http://seafood.vasep.com.vn/50\\_123\\_12456/statistics/vietnam-crab-exports-2017](http://seafood.vasep.com.vn/50_123_12456/statistics/vietnam-crab-exports-2017).

<sup>24</sup> “The impact of blue swimming crab fishery management for the profitability of US buyers.” Vivid Economics. May 2018.



During this same time period, it was also reported that the specifications of imports have dwindled, lowering the Jumbo requirement from 3.5g to 3g. This 3g minimum size for Jumbo Lump is a policy requirement of the Crab Council. It is not a legal or import requirement to define a grade.

Two of the largest firms expressed significant concern for the increase in Jumbo and Colossal crab meat prices, stating that these were leading to a negative cycle of “demand destruction” in which buyers dropped BSC from their menus due to high prices or replaced it with cheaper red swimming crab. Their experience indicated that crabmeat only came back onto menus after prices declined, which serves to repeat the cycle with increased demand and prices. The consensus of the opinion of those interviewed was that this cycle was driven by the decline in available Jumbo and Colossal meat portions.

Significantly, none of the major end market buyers expressed undue concern with regards to product availability or price at the time of this review. Under the current circumstances, they have not been exposed to the impacts of stock deterioration (such as those explored in the Vivid report), as their purchasing practices allow them to work with a range of different firms, small and large, sourcing from various countries. They are also able to meet some demand by substituting red swimming crab. Due to historical experience with price and supply fluctuations in this and other supply chains, they have established pricing and inventory practices that allow them to pass price increases to buyers relatively promptly. The result of these supply chain practices is to largely inoculate major end market buyers from stock variations and, to a certain extent, any associated losses from price fluctuations in any one individual country or fishery. As documented in the report by Vivid Economics, price shocks tend to impact smaller firms and those sourcing from smaller fisheries to a greater extent than the larger firms with access to multiple fisheries<sup>25</sup>.

The higher incidence of smaller CC firms reporting difficulties in meeting the demand for Jumbo meat, combined with the deterioration in meat sizes and the relative increase in price differences between meat sizes, are likely to be harbingers of poor stock conditions and poor stock management. This is already impacting smaller firms, and it is likely only a matter of time before this becomes a material issue for the larger CC firms, and, ultimately, the end buyers. It may be argued that by the time the end market buyers do experience the deterioration being faced by smaller CC firms and processors, it may be too late for stocks to bounce back.



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<sup>25</sup> Ibid.

Members of the CC were aware of how important the Council's model is to address the cultural and regional differences across Southeast Asia. They were positively disposed to the efforts undertaken to address sustainability through in-country partners. Working closely with local value chain partners, while time consuming, has yielded increased buy-in and the development and adoption of national policies around these practices. As an example, Indonesia has in place policies to support minimum landing sizes, prohibitions around landing berried females and, up until recently, a ban on trawl operations in this fishery.

Each interviewee revealed a high degree of awareness regarding the inadequate enforcement and monitoring in each of the sourcing countries. Despite the efforts to develop policies in support of sustainable practices, there was strong consensus around the poor levels of awareness and adoption of sustainability practices in each of the source countries, particularly with harvesters and first buyers “at the water's edge”.

A bifurcation of opinion exists around the notion of how best to address this challenge in a practical manner and who is most responsible: some shared that in-country governments have a responsibility to increase their level and quality of management; while a second group shared that members within the Council had the ultimate responsibility to engage harvesters directly and police their own supply chains to ensure they are not sourcing undersized crabs or berried females, and thus introducing IUU products into their supply chains.

Both perspectives are focused on the trials of the “Control Document” currently underway in two sites in Indonesia. Some within the CC have proposed regional implementation and integration into export documentation requirements to ensure that imports do not include IUU product. Unfortunately, none of the parties interviewed could identify how quickly such a system could be implemented, how best to pay for its implementation and adoption, nor could they suggest an alternative approach to the weaknesses in such a system.



## Successes

- **Crab Council formation** – Unlike many other seafood sectors, the presence of a body consisting of the majority of U.S. importers provides a forum to collectively identify and address industry concerns related to sustainability.
- **Industry levied fee** – The Council levied, self-assessed fee of 2¢ per pound provides resources to address industry-wide concerns for sustainability and recruit and retain local leadership. Unlike many other seafood sectors, this provides resources to the Crab Council to implement FIPs, amounting to \$2.1 million to date.
- **National associations’ formation** – In-country processor associations were designed to integrate local and cultural practices into sustainability discussions. These associations, developed and supported by the CC, are now operating in all sourcing countries and are responsible for their respective in-country FIP implementation.
- **FIPs** – The development and implementation of FIPs across sourcing countries has given the CC useful guidelines and targets.
- **Government policies’ development** – Adoption into law of policies designed to improve stock sustainability was cited as a significant achievement by interviewees. These primarily relate to the 10cm minimum carapace size regulations, the prohibition on the landing of berried females and the ban on trawl vessels (in Indonesia).
- **Control Document implementation** – The development and trialing of a document designed to capture some of the missing data points that would allow for more comprehensive monitoring and enforcement of rules is the culmination of years of work.





## Threats

- **Demand destruction** – The reduction in demand that occurs when meat prices are considered too high by end markets is a perceived threat for many firms interviewed.
- **Low barriers to industry entry** – There is a general sense that competition has increased over the past ten years at harvester and importer levels, though this sentiment is not borne out by the data.
- **Product volatility** – Major buyers did not report being negatively impacted by product volatility. The buyers interviewed had the ability to purchase from different sources in the event suppliers were unable to supply BSC products.
- **Poor data** – Data deficiency, particularly at the base of the value chain, as it relates to harvesters, species, vessels, gear types and landing compositions represents a significant risk to effectively addressing sustainability in this fishery across the region. The Control Document is intended to address this deficiency, but cost and scalability are limiting factors at this time.
- **Negligible enforcement in source countries** – Poor enforcement of policies designed to improve stock sustainability was a principal area of concern and threat to the supply chain.
- **Low harvester engagement** – Poor awareness and participation of harvesters in practices that address sustainability in the source countries was clearly identified as a threat and can prevent sustainability initiatives from being implemented at the base of the supply chain.
- **Lack of standardized product grades in U.S. market** – The lack of a market standard grade for crab meat, similar to that for shrimp or beef, is likely leading to declining product standards as ever smaller crab are substituted. This substitution can also be considered an indication of overfishing and a declining stock.

## Learnings

- **“Success happens at the water’s edge”** – There is a recognized need to improve fishery compliance at the water’s edge either through improved government involvement and/or supply chain enforcement of the sustainable management practices implemented via FIPs.
- **In-country acceptance and adoption** – This was recognized by all as an important component for success, but there was no consensus how it should be achieved.
- **In-country government enforcement** – The lack of political will and monetary resources for improved government enforcement in source countries was recognized as a major concern, but there was no agreement over who should address this and how.
- **Supply chain management improvements** – Interviewees recognized the importance of strengthening supply chain management, particularly considering the impending Seafood Import Monitoring Program (SIMP) requirements. However, there was little agreement over how to best address this beyond adoption of the Control Document.

## Opportunities

- **Crabmeat grade standardization** – There is a need to establish a level playing field amongst Council and non-council participants and send a clear signal to supply chain partners that size matters and is being tracked. Formal, legally enforced standardized grades would allow the Council to track which members are routinely sourcing undersized crabs. If combined with traceability to the landing area, these areas could be avoided by in-country association members. Because larger size crabs are more valuable, it is in the economic self-interest of all supply chain actors to catch larger crabs.
- **Assess the effectiveness of country level FIPs** – Utilizing key performance indicators (possibly utilizing the Fishery Performance Indicators<sup>26</sup>), undertake annual reviews of FIPs to determine their effectiveness and engage in the development of FIP 2.0 models that would focus more of an effort on driving change at the harvester and first buyer level. The long development period in some FIPs risks compromising the reputation of the Crab Council.
- **Conduct a comprehensive assessment of FIP investment requirements** – In order to determine exactly what it will take to push these fisheries to certification, it will be important to complete a comprehensive assessment of the investment requirements and financial structures necessary to both achieve sustainable fisheries and ensure investors can benefit. This information is still relatively unknown across most fisheries, making it challenging for companies to be able to determine how much they ought to be investing in these resources' recovery to see lasting success.
- **Establish a more robust Fishery Improvement Fund** – Leverage industry investment to secure capital from the philanthropic, public and private sectors to achieve much needed greater impact and scale.
- **Southeast Asia BSC data collection and analysis** – Aggregate and analyze data across all source countries to understand and address stock health concerns and highlight where additional gaps exist.
- **Product traceability** – Improving traceability of BSC is an opportunity to engage harvesters, as well as to meet both customer demand and U.S. policy requirements around IUU. Tracking landings to the fishing area would have numerous benefits, including: 1. Improved consumer trust; 2. Improved ability to analyze stock health, if combined with carapace width measurements; 3. Deterred fishing in areas with undersized crabs.
- **NFI brand “Committed to Sustainability”** – Taking advantage of the aforementioned opportunities allows NFI to continue to build on the market recognition of the brand and ensure there is no greenwashing.

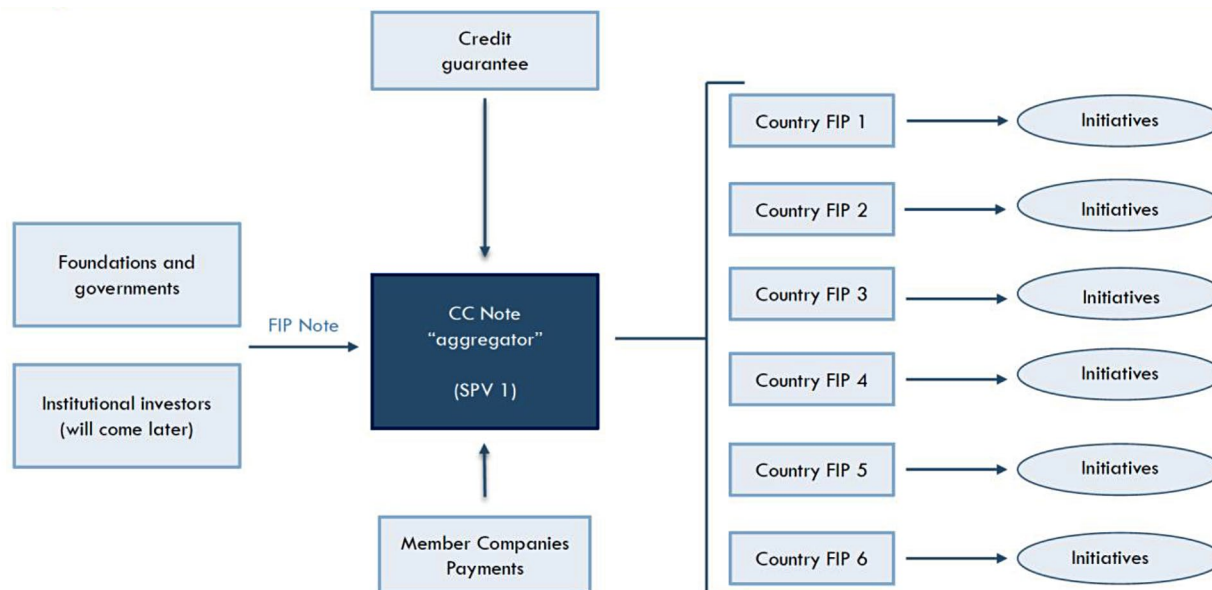


<sup>26</sup> Anderson JL, Anderson CM, Chu J, Meredith J, Asche F, Sylvia G, et al. (2015) The Fishery Performance Indicators: A Management Tool for Triple Bottom Line Outcomes. PLoS ONE 10(5): e0122809. <https://doi.org/10.1371/journal.pone.0122809>

## The Way Forward

The CC has adopted FIPs as the framework around which to address fishery sustainability issues in Southeast Asia. However, given the concern regarding the effectiveness of existing FIP standards in achieving improved fishery management and sustainability<sup>27</sup> on the water, the CC should engage, at scale, in the development of FIP 2.0 designs underway. This effort could address the needs of the fishers and their communities in a proactive and tangible manner, against an externally validated benchmark and clearly defined KPIs.

This approach will be more resource intensive and will require an investment in sustainability practices above the current budgets. These resource requirements can be achieved by developing a mechanism to pool industry, philanthropy and low interest capital in an “improvement fund” as depicted below:



**Figure 8** – Proposed CC investment structure

<sup>27</sup> "Summary findings from the Global Landscape Review of FIPs". CEA Consulting. Retrieved on 13 March 2018 from <http://www.ceiconsulting.com/wp-content/uploads/Global-Landscape-Review-of-FIPs-Summary.pdf>





## CONCLUSIONS

The NFI Crab Council occupies a unique and enviable position in the context of international seafood supply chains: their membership represents the majority of U.S. imports and they have agreed to a self-assessed fee to fund the fishery improvement activities of the organization and their in-country partners. This is all with an explicit purpose of leveraging their capital and market position to stabilize the supply of crab into their market by pushing for improved sustainability.

Interviewees identified that the Council has an important role in ensuring collective action in addressing the challenge of demand destruction being experienced by industry members. The scarcity of larger crab meat products is reportedly resulting in higher prices and the consequent removal of the product from menus.

Given the data challenges and the status of the projects in place, drawing a correlation between the CC investment in FIPs and price and/or supply volatility is difficult. Indeed, despite perception to the contrary, the data indicate that import volumes are continuing to decline, and prices are increasing across all meat grades, indicating that overfishing is still occurring. Due to the lack of standardized meat compositions and poor data throughout the fishery, any perceived stability in imports cannot be directly traced to improvements in fishery stability and is likely to be the result of increased geographic catchment areas as well as a deterioration in meat standards as greater numbers of small size crabs are swept up across the region. While end market buyers may not perceive price or supply challenges at this time due to their purchasing practices, it may be too late for the fishery to recover when they ultimately do experience the challenges currently being faced by smaller suppliers, such as those described in the accompanying Vivid Economics report.

Despite the challenges, the CC model provides a valuable precompetitive platform to aggregate practices and capital to continue to address sustainability at scale. By engaging in the development of a new FIP framework, the CC has the opportunity to ramp up its fishery improvement efforts by tackling issues at the base of their supply chain – the harvester and first buyer level. Without addressing resource management concerns at this level, these source fisheries will likely never see the improvement necessary to lend to a stable supply chain. The development of a more robust and well-rounded investment fund to support these efforts should also be considered in order to achieve both sustainability and management outcomes in the long term.

## APPENDIX A: Interview List

No.	First Name	Last Name	Date of Interview(s)	Organization
1	Brendan	Sweeny	20 – Feb	Handy
2	Rob	Kragh	16 – Feb	Chicken of the Sea
3	Anjan	Tharakan	21 – Feb	Newport International
4	Stephen	Phillips	14 – Feb	Phillips Foods
5	Brice	Phillips	01 – Mar	Phillips Foods
6	John	Keeler	08 – Feb	John Keeler and Company Inc.
7	Carlos	Faria	14 – Feb	John Keeler and Company Inc.
8	Tom	Dykstra	14 – Feb	Heron Point Seafood
9	Richard	Stavis	06 – Feb	Stavis Seafoods
10	Jeremy	Crawford	16 – Feb	IPNLF (formerly with CC)
11	Ed	Rhodes	13 – Feb & 21 – Feb	NFI
12	Richard	Barry	27 – Feb	NFI
13	Gavin	Gibbons	08 – Feb	NFI
14	Dick	Jones	05 – Feb	Ocean Outcomes
15	Eric	Buckner	08 – Mar	Sysco
16	Randy	Spencer	28 – Feb	Lunds
17	Sebastien	Metz	21 – Feb	SFP

We attempted but were unable to interview anyone at the following organizations: Avendra, Bonamar, Twin Tails, Lawrence Street, Costco and Sodexo.

## APPENDIX B: CC Member List

No.	Company	Year Joined	Regular	Contributing
1	Phillips Foods	2009	X	
2	Twin Tails	2009	X	
3	Blue Star Foods	2009	X	
4	Chicken of the Sea Frozen Foods	2009	X	
5	Handy International	2009	X	
6	Heron Point Seafood	2009	X	
7	Bumble Bee Foods	2010	X	
8	Newport International	2010	X	
9	RGE Agridev Corp	2010	X	
10	Aqua Star	2011	X	
11	Bonamar Corporation	2012	X	
12	Quirch Foods	2012	X	
13	Stavis Seafoods	2012	X	
14	Carrington Foods	2012	X	
15	Gilpin Company	2012		X
16	Transglobal Products	2013	X	
17	Supreme Crab & Seafood	2013	X	
18	Mark Foods, Inc.	2014	X	
19	Ocean Source Group	2014	X	
20	Sea Fare Foods Corp.	2015	X	
21	Byrd International	2015	X	
22	Fortune Fish & Gourmet	2015	X	
23	Sherrill International	2016	X	
24	Rich Products Corporation	2016	X	
25	Atlantica Imports, Inc.	2016	X	
26	Fisherman's Choice	2016	X	
27	Poseidon Food	2016	X	
28	Oceana Company	2016	X	
29	Crown Prince	2017	X	
30	Harbor Seafood	2017	X	
31	Seafood America	2017		X
32	Fresco Fisheries	2018	X	
33	Crustacea Seafood Company	2018	X	
34	E. Frank Hopkins Seafood	2018	X	