A US Market Assessment for MSC Certified Caribbean Lobster: Evaluating Context, Distribution and Opportunity

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Executive Summary
(See Appendix A for Spanish Version)

This report assesses the US market demand for Caribbean eco-harvested lobster. Our partner is The Nature Conservancy (TNC); as a member of the Kanan Kay Alliance, TNC works to improve sustainable fisheries management and marine conservation in the Mexican state of Quintana Roo. The Marine Stewardship Council (MSC) has recently certified six local fishery cooperatives due to their strong commitment to sustainable fishing practices. These cooperatives are now exploring opportunities to market into segments that value sustainable harvesting and view the certification as an asset to the final product.

The conclusion is that there is not a strong market in the US for the Mexican spiny lobster; there is no indication that consumers or retailers are willing to pay a premium price for sustainability alone. Furthermore, depending on the region, consumers may have a strong preference for North Atlantic lobster. Within specific coastal regions (mainly in Florida), the US market currently catches spiny lobster, although 80% of its landings are sold to China. However, the Mexican lobster could expand within the US if there is enough differentiation in the product from the remaining domestic production and current imports. In addition to sustainability, traceability appears to be a significant decision factor in consumer preference; thus exporters should consider marketing the lobsters’ journey when evaluating business development and delivering assurance to buyers, both retailers and consumers, of the origin of the lobster.

The first section of this report will contextualize the issues regarding US market entry, as well as highlight the intersection between maintaining health ecosystems and the politics along the lobster supply chain. The second segment will explain the current lobster market in the US, focusing on consumer preference as it relates to the spiny lobster. The third section illustrates the nuances of the supply chain in Mexico as well as the principal regulatory aspects concerning Mexican exporters when selling lobsters in the US. The final section will outline major recommendations for the Quintana Roo cooperatives to move forward.

Problem statement

The goal of this project is to engage with the Kanan Kay Alliance, a multi-stakeholder initiative that seeks to improve sustainable fisheries management and marine conservation in Quintana Roo, Mexico. By assessing the market demand in the USA for imported eco-harvested lobster, we will ultimately help fishing cooperatives to increase their customer base, improve their negotiating power, as well as develop marketing strategies to leverage value-added compensation for sustainably harvested lobsters with Marine Stewardship Council (MSC) Certification. The

1 Florida Fish and Wildlife Conservation Commission
Nature Conservancy (TNC) has facilitated the project and it is one of the members of the Kanan Kay Alliance.

As part of the socio-economic development strategy for fishing communities, the Alliance seeks to strengthen the commercialization of the MSC eco-certified Caribbean lobster (*panulirus argus*) from the state of Quintana Roo. This will help to sustain the livelihoods of low-income fishers who are harvesting fisheries through artisanal practices in a eco-friendly, traditional manner. The project will ultimately encompass 12 communities in total (6 thus far), mostly self-governed by mechanisms that comply with Ostrom’s “design principles” of stable local common pool resource management.

Although initial efforts to strengthen commercialization have been largely successful and the cooperatives are able to sell their products locally and internationally (mainly China, Hong Kong, and the US), the proportion of value added sales (despite certification) is still low and fishing cooperatives continue to be vulnerable to market prices as established by intermediary buyers.

In summary, the Alliance has limited information about the value of their eco-harvested lobster in different markets. An assessment of the market in the USA for imported eco-harvested lobster would inform decision-making around criteria for potential market exploration and expansion.

**Background**

**The Nature Conservancy (TNC)**

The Nature Conservancy (TNC) is the largest environmental nonprofit in the Americas. Its mission is “to conserve nature and the value it provides to people, while helping the world meet demand for food, water, and energy.” This project fits into one of TNC’s five major goals: “Spark a Revolution in Ocean Protection.” As a member of the Kanan Kay Alliance, TNC works with six of Quintana Roo’s 25 lobster fishing cooperatives. These six cooperatives have exclusive lobster fishing rights in the Biosphere Reserves of Sian Ka’an and Banco Chinchorro. To promote fair trade, responsible commercialization, and general cooperation, these six coops sit on the board of a for-profit corporation called the Integradora de Pescadores de Quintana Roo (‘Integradora’). Though these coops do not currently sell their product together, they together own the CHAKAY-MSC trademark (Chakay meaning lobster in Maya).

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3 The Nature Conservancy Sustainability Lab Application

4 The Nature Conservancy Sustainability Lab Application
**Kanan Kay Alliance (Alliance)**

The Kanan Kay Alliance is a multi-stakeholder initiative that seeks to improve sustainable fisheries management and marine conservation in Quintana Roo, Mexico, through the facilitation of collaborative processes and actions that promote the establishment of a network of no-take zones (fish refuges) and other fisheries improvement activities. In addition to the six coops, the Alliance’s 41 members include governmental agencies, NGOs, and philanthropic foundations concerned with restoring Quintana Roo’s oceanic zones and artisanal fisheries.

**The Coops’ Fishing Practices and the Marine Stewardship Council (MSC) Certification**

The Integradora coops are the second set of fisheries in Mexico to have become MSC-certified. Though the cost of MSC certification is not covered the producer, the fishing cooperatives and the Alliance have put significant efforts into getting certified and would like to extract maximum value from the certification. For this reason, our team was requested to identify and quantify the value of MSC certification in the US market.

**The Spiny Lobster Industry in the US**

Our team conducted primary research with Resiliensea (a Group Inc. firm specialized in the US seafood industry), the Florida Fish and Wildlife Conservation Commission, and the Maine Lobster Dealers’ Association, in order to further verify the findings from our initial investigation.

The seafood market within the US has been growing at a stable rate of 3.6% a year since 1961; it is the third largest consumer of seafood world-wide, and consumption is expected to rise as the population rises. Americans eat on average of 16.3 lbs of seafood a year, contributing to a $300 million/year industry. Lobster, which was originally considered a food mainly for lower economic classes in the North East during the 19th century, had evolved into a luxury commodity throughout the 20th century due to growing scarcity and changes in consumer preference.

Although widely popular in US coastal regions, the domestic lobster industry took a hit after several Icelandic banks failed to provide Canadian processors loans during the financial crisis of 2008. This left substantial reserves of unsold frozen inventory, which ultimately lowered prices. Although consumer confidence was diminished, the new lower prices were enticing for price sensitive consumers and a new demand was created and has sustained. Currently, the US boasts the largest live lobster market in the world; a majority of lobster eaters (about 75%) prefer to eat

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lobster in restaurants. Darden (Red Lobster, Olive Garden), Restaurant Partners LLC (Carnival Cruise Ships) and Bloomin Brands (Outback) are two of the largest lobster importers within the country. Currently, Lobster has grown in popularity and entered many value added products, such as salads and pizzas.9

Consumer preferences vary greatly by US region. Within the North East, cold-water lobsters are preferred since consumers prefer local catches with large claws.10 The most common lobster, labeled Maine Lobster, carries strong brand recognition and encompasses lobster caught in New England, spanning a geographic scope from Northern Maine to Boston.11 However, in California and Florida warm water spiny lobster tails are preferred, which could be promising for Mexican importers. Spiny lobsters mainly are sourced from 5 markets: Brazil, Cuba, Bahamas, Honduras, and Nicaragua.12 In addition, processed spiny tails tend to sell more expensively than cold water tails since they are larger (5-6oz versus 6-8oz), as well as scarcer in supply.13

In general, lobster price is not influenced by quality due to the complex nature of the supply chain, though consumers highly value product freshness.14 The processed tail market is important for the international import market since it has an expanded shelf life, adds value to the raw product and can be used in retail products. Latino and Asian populations within the coastal US are increasing their seafood intake, which will inevitably increase the domestic lobster market.15

As for MSC certification, our investigation has suggested that US customers are not as interested in the label as European markets; they are more concerned about price.16 Although consumers have conveyed a higher willingness to pay for other sea products, such as the Fresh From Florida campaign on retail shrimp, these trends are not replicated in the US lobster market.17 In addition, several US fisheries in the North East are already heavily regulated and the fishers do not appear that motivated to pay for the certification. However, the label does add value by providing added credibility to retailers. It is a powerful tool towards increasing corporate brand and mitigating potential risks in the future. Additionally, retailers may provide preferable shelf space for MSC products. A majority of American consumers labeled lobster as a healthy (62%), and there has been a recent increase in concern in how the seafood was caught.18

10 Conference call with The Nature Conservancy
11 Annie Tselikis, Maine Lobster Dealers Association
12 Florida Fish and Wildlife Conservation Commission
14 Annie Tselikis, Maine Lobster Dealers Association
15 Conference call with The Nature Conservancy
16 Annie Tselikis, Maine Lobster Dealers Association
17 Florida Fish and Wildlife Conservation Commission
Whole Foods, a high end US grocery chain, is now offering hook caught cod and other MSC certified seafood. Furthermore, the Slow Fish movement and other healthy living movements have emphasized the importance of the traceability of the seafood in grocery stores. Since Quintana Roo is the 2nd MSC certification in all of Mexico, and employs traditional and eco-friendly fishing practices, we believe there is a lot of added value in telling this narrative to American consumers. Rather than selling lobster tails as simply a frozen commodity, we suggest selling products of a story fishery\textsuperscript{19}. This would represent one step beyond simply selling a certification, but providing retailers with an opportunity to differentiate their products among their own competitors based on traceability.

**US Retailer Demand for MSC-Certified Caribbean Lobster**

Our team conducted primary research investigating six broad retailer segments: restaurant, grocery store, hotel, college/university, distributor, and manufacturer. From this research we were able to glean several common themes.

- **Procurement process.** Our conversations revealed a fairly standard, general procedure that food establishments follow as they procure seafood.
  1. *Establish specification.* Before beginning the search for a seafood vendor, a food establishment must create specifications for the desired product. This relates to how the product will ultimately be used. For instance, the menu item that a restaurant wishes to produce determines what specifications are required. In the case of lobster, menu items where lobster is an ingredient such as lobster mac and cheese can have a broader specification whereas shell-on lobster dishes are highly specific.
  2. *Determine the volume needed on a quarterly or annual basis.*
  3. *Gather pricing information and negotiate contract.* Pricing information can be very difficult to ascertain and tends to be gathered from informal channels. Many procurement managers appear to rely on personal connections in the industry.

- **Sustainability standard as a box to check.** For retailers who purchase sustainable products, they establish a standard that their procurement department must meet and then decisions are made based on other criteria such as price and quality. Therefore, having a product that meets the minimum requirements for a company’s sustainability criteria will enjoy the same willingness to pay as a product that is far more sustainable. It is a box to check—a product must be considered sustainable *enough* to pass the test—rather than a gradient of more or less sustainable\textsuperscript{20}.

\textsuperscript{19} Conference call with The Nature Conservancy
\textsuperscript{20} Information from Sustainable Food Manager at Stanford University, Director of Culinary Strategic Sourcing & Procurement for SeaWorld, and Global Perishable Purchasing Executive Coordinator at Whole Foods Market.
Retailers’ Perception of North Atlantic Compared to Caribbean Spiny Lobster

These conversations also revealed how retailers compare North Atlantic and Caribbean lobster. Figure A summarizes such differences and outlines the impact on value these perceptions entail. See Appendix B for a detailed description.

<table>
<thead>
<tr>
<th>Comparison</th>
<th>North Atlantic Lobster</th>
<th>Caribbean Spiny Lobster</th>
<th>Impact on Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shell color when cooked</td>
<td>Dark &amp; spotted</td>
<td>Red</td>
<td>US consumer is accustomed to and prefers red color</td>
</tr>
<tr>
<td>Texture</td>
<td>Coarser</td>
<td>Finer</td>
<td>US consumer prefers finer texture</td>
</tr>
<tr>
<td>Claws</td>
<td>Small, no meat</td>
<td>Large, meat</td>
<td>Lack of claws prevents spiny lobster use in some dishes</td>
</tr>
<tr>
<td>Taste</td>
<td>Similar taste</td>
<td>Similar, more flavorful</td>
<td>In the US, supports dominance of American Lobster</td>
</tr>
<tr>
<td>Live Storage</td>
<td>Minimum: 62° F up to 50 hours</td>
<td>Minimum: 32° F to 40° F up to 6 months</td>
<td>American Lobster – easier to sell live</td>
</tr>
<tr>
<td>Ease of cooking</td>
<td>Specific preparation required</td>
<td>More forgiving in case of over cooking</td>
<td>Chefs will prefer American Lobster if they have choice</td>
</tr>
<tr>
<td>Risk for buyers</td>
<td>Concern safety/quality</td>
<td>More forgiving in case of over cooking</td>
<td>Some interviewees expressed distrust for warm-water lobster - concerns about corruption and lack of transparency</td>
</tr>
</tbody>
</table>

Figure A

Retailer Preferences for Seafood Sustainability Standards

In our conversations and secondary research, we came across three filters that seafood procurement managers used in seafood sustainability: (1) Marine Stewardship Council certification, (2) Best Aquaculture Practices certification, and (3) Monterey Bay Seafood Watch.
Marine Stewardship Council (MSC)
MSC is a chain-of-custody certification meaning that the product has been traced through every step of the supply chain.\textsuperscript{21} This certification is generally perceived as the gold standard for wild-caught fish.

Best Aquaculture Practices (BAP)
BAP is the leading certification for farm-raised fish.

Monterey Bay Seafood Watch (Seafood Watch)
Seafood Watch was the most common filter we found US companies to be using. Seafood Watch is not a certification but rather a sustainable seafood advisory list. This tool relies on certifications and other research to classify sources as red, yellow, or green. Though this tool uses some information from MSC, an MSC-certified fishery does not always qualify as green. The Monterey Bay Aquarium did, however, perform an analysis on the MSC criteria and determined that an MSC-certified fishery would always qualify for at least the yellow level.

Though most companies we interviewed had a seafood procurement policy requiring a certain level of sustainability, there was not clear evidence that these companies paid a premium for these products. We were told that price premiums previously existed when sustainable sources of seafood were scarcer but that these premiums have largely dissipated.\textsuperscript{22}

Pricing from the Fishermen’s Perspective
Though pricing information was very challenging to receive from retailers (this information is proprietary and highly negotiated), we were able to secure the weighted price per pound that spiny lobster fishermen off the coast of Florida have received over the past twenty years.\textsuperscript{23}

\textsuperscript{21} http://www.scsglobalservices.com/sustainable-seafood-certification
\textsuperscript{22} SeaWorld; Resiliensea
\textsuperscript{23} Florida Fish and Wildlife Conservation Commission
As shown above, lobster pricing has nearly tripled in the past two decades, from $3.64 in 1995-1996 to $9.92 in 2014-2015. The decline in pricing in 2008-2010 can be attributed to the 2008 financial crisis, as consumers substituted away from lobster, a high-price-point item viewed as a luxury. Americans also generally reduced the amount that they went out to eat during the recession, thereby reducing demand for lobster in the restaurant market segment which represents roughly 80% of the US lobster market. In short, Florida spiny lobster fishermen are receiving roughly 70% more revenue per pound than the Quintana Roo lobster fishermen: $9.92 per pound versus $5.84 per pound. While this pricing trend translates to a benefit of more revenue for lobster fishermen, thereby helping them make a sustainable living, it has the negative effect of creating a greater incentive for lobster fishing, including potential illegal fishing. This could threaten the health of lobster stocks.

**Seasonality**

In the Florida market discussed above, lobster sales are highly seasonal. The Florida season opens August 6th. More lobster tends to be caught in August and September so pricing is lowest in these months. The Chinese New Year (falling on February 8th this year) is the highest demand period, with January demand triple the average. US lobster exports to China spike during this time, as the product is increasingly viewed as an “affordable culinary delicacy.” Despite the transferability of individual fishing quotas in this area that should theoretically allow and encourage fishermen to adjust their fishing volume to match demand and therefore even out

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24 The 2014-2015 lobster fishing pricing figure is up to the current date; the season is not yet complete. End-of-season sales tend to be at a higher price point than the average yearly price, meaning that the ultimate 2014-2015 pricing figure will likely be higher than shown

25 Florida Fish and Wildlife Conservation Commission

pricing, this seasonality persists and is a source of frustration for the area’s fishery management regulators. Overall, it is estimated that 80% of landings of spiny lobster from Florida are directly sold to China.\(^{27}\)

In contrast, the local Mexican market does not suffer from this same effect. The season for harvesting lobster spans from July to February, and any harvesting that happens outside this time window is considered illegal. However, some cooperatives have found technology to keep lobsters tails frozen for longer time, so they can sell at a higher price once the catch season is off. Since demand is constantly increasing, fishermen who hold production have learned that they may end up making more money off-season.

**Substitutability**
An important element of seafood procurement, particularly in the restaurant segment, is substitutability. When a seafood product is experiencing price hikes, especially due to supply shocks, restaurant seafood procurers are generally very willing to adjust their menus to reduce cost and ensure a steady, reliable product supply. For instance, Early Mortality Syndrome has strained Asian shrimp supply since it was first identified in China in 2010, thereby increasing demand for lobster.\(^{28}\) As depicted in Figure A, since lobster pricing returned to pre-recession levels in 2010-2011, lobster price per pound received by Florida lobster fishermen has grown by roughly 14% each year.

While this high level of seafood substitutability is currently in lobster fishermen’s favor as lobster supply is steady, it also means that demand for seafood products is highly elastic. That is, small increases in the price of a seafood product result in a large reduction in demand so higher prices for a seafood product can only be sustained as long as other food substitutes are also increasing in price. Lobster is also perceived as a luxury item that also adds to its price elasticity of demand. For the American consumer, lobster substitutes are not just limited to other seafood but also to other luxury-status main dish meats such as steak.

**Regulation to bring Caribbean lobster into the US**

The US maintains several established distribution channels for imported lobster. Although many Americans assume an overwhelming majority of the lobster they eat comes from the New England region, in fact 57% of the lobster consumed domestically comes from Canada.\(^{29}\) A majority of the spiny lobster in the US is supplied by Nicaragua and Honduras.\(^{30}\) In addition,

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\(^{27}\) Florida Fish and Wildlife Conservation Commission.

\(^{28}\) Florida Fish and Wildlife Conservation Commission; Schryver, Defoirdt, Sorgeloos.


\(^{30}\) Florida Fish and Wildlife Conservation Commission
Belize is currently exporting 95% of its tails into US markets\(^1\). In order to import Sea Food into the US markets, regardless of certification, there is a rigorous process governed by the Food and Drug Administration (FDA), the National Marine Fisheries Service, as well as the Fish and Wildlife Service\(^2\). Importation of purely lobster meat is illegal since 2005 due to concerns of harvesting undersized lobsters; exporters must ship the meat in the shell\(^3\).

Importers must initially submit a DS-2031 form to the Customs and Border Protection agency; this process may require additional government certifications as well depending on the importers origin. For commercial imports, suppliers must also obtain Prior Notice as well as register with the FDA before distributing product within the country. A complete overview of the updated regulations for importing sea food can be found within the Food Modernization Act, which was reformed in 2011 in order to reflect current standards in food safety and quality. Finally, the FDA also provides The Seafood List, which specifies labeling guidelines reflective of commonly recognized U.S. consumer terminology\(^4\).

**Quintana Roo Spiny Lobster: An Analysis of the Supply Chain**

In Quintana Roo, six fishery cooperatives have united to create the *Integradora de Pescadores de Quintana Roo (IPQR)*\(^5\). Since 1960, these cooperatives have organized themselves in a unique system of individual marine plots, *campos*, imposing strict rules for fishermen to sustainably harvest their assigned spaces. This resource allocation has resulted in a competitive advantage for these cooperatives in terms of assuring lobster stock for longer time (other communities that did not introduce this system have had their stock depleted in less than 15 years)\(^6\). Nowadays, these cooperatives are entitled to an exclusive concession permit from the Mexican Government to harvest the areas assigned to them by law.

During the 2014 lobster season, IPQR Cooperatives harvested approximately 200 tons of lobster\(^7\), which represented 2/3 of the total production of lobster in Quintana Roo\(^8\) in the same period. The production was sold to processors and dealers at the average price of $12.85 per kilo.

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\(^1\) Conference call with The Nature Conservancy


\(^3\) Florida Fish and Wildlife Conservation Commission

\(^4\) U.S. Customs and Border Protection. https://help.cbp.gov/app/answers/detail/a_id/204/~/regulations-for-importing-seafood

\(^5\) Vigía Chico, Pescadores de Cozumel, José María Azcorra, Langosteros del Caribe, Andrés Quintana Roo, and Pescadores de Banco Chinchorro


\(^7\) Sian Ka’an Cooperatives usually harvest 150 tons of lobster annually, but March 2014 had major weather events that impacted the production.

\(^8\) The Nature Conservancy, internal estimations. Equivalent to MXN 200.00 per kilo.
($5.84 per pound) under one common brand: CHAKAY ("lobster" in Mayan)\textsuperscript{39}. The common brand aims at attesting the lobsters with certificate of origin and sustainable harvesting.

The supply chain is divided into 4 major steps: harvesting, distribution, US dealers, and consumer facing sales points. Appendix C details an example of frozen tails from caught to bought.

![Figure C](image)

Most of the production of spiny lobster in Mexico is sold abroad. Local market is still incipient, although high-end restaurants have already found out the profitability of selling lobsters. Outside the high-end circuit, Mexicans will have no choice but to the second tier of lobsters in terms of quality, since the best products will be exported.

The logistical implications of this process vary according with the specification for the product:

- **Live Lobster (usually sold to China)** – after harvesting, Lobster is put into tanks with very low temperature and liquid oxygen input until it is dormant. It will then be taken to Honk Kong in an airplane. As mentioned above, warm water spiny lobsters are less resistant to cold temperatures, so any delay beyond 50 hours hours is usually fatal. Price is usually paid according to the volume of lobster that arrive live, which has increased drastically the complexity of selling live lobsters to Hong Kong.

- **Whole lobster (dead) (usually sold to Europe)** – harvested live, fishermen kill the lobster, take out intestine to avoid contamination and put them into ice. Volume of at least 15 tons will be shipped in containers\textsuperscript{40}.

Figure D shows a complete lobster supply chain for Belize, neighboring country to the state of Quintana Roo. It has been prepared by the Sea Fare Group\textsuperscript{41} very recently, and may be

\textsuperscript{39} Ley Cooper, K., y E. Quintanar Guadarrama 2010. Chakay: Marca colectiva con identidad de origen de las cooperativas de Quintana Roo. CONABIO. Biodiversitas, 90:10-15

\textsuperscript{40} Anonymous Mexican Buyer

\textsuperscript{41}
considered as a reasonable proxy on how prices for spiny lobster are mark-up once they land in the country.

Figure D

**Recommendations**

- Given that most seafood procurement managers we spoke to use the Monterey Bay Seafood Watch as their sustainability filter, Kanan Kay could benefit from evaluating the Quintana Roo fisheries against the Seafood Watch criteria, as MSC certification does not automatically qualify a fishery to be categorized into the green level. However, similarly to the Marine Stewardship Council, the Monterey Bay Aquarium is a non-profit organization, and there is a cost to be certified. Official certification should only be pursued in the event that a price premium for sustainability develops.
- The six cooperatives should join together to negotiate a contract with a buyer for their full volume to increase their leverage and improve pricing. They could also consider combining their catches into larger shipments (if it is logistically feasible) to lower the marginal cost of shipping the lobsters.
- Although most information was difficult to access, lobster pricing will be a key determinant in how to enter the domestic market. Direct suppliers should understand and craft their pricing arrangements to ensure both fishers and distributors take advantage of the MSC certification.

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41 International market analysis and opportunities for lobster and conch from Belize; Sea Fare Group; Seattle, Washington; February, 2015
The processed lobster market is a great opportunity for internationally imported market although a majority of the lobster market still pertains to the restaurant sector. Processed lobster-based goods have longer shelf lives and can capture added value to other products.

Connect and collaborate with Annie Tselikis, the former Education Coordinator of the Maine Lobstermen’s association.

Focus on expanding lobster sales within growing minority markets in the US. Both Asian Americans and Latinos have demonstrated a growing demand for lobster in their diets. This may include expanding into Japanese restaurants since Japanese consumers are already accustomed to spiny lobster. We suggest identifying major Japanese restaurant chains in the US and having the Mexican distributors contact their procurement teams.

Develop a strong narrative for the MSC certification. Quintana Roo should be a story fishery instead of simply selling a commodity. This involves utilizing surveillance methods to better determine and convey the traceability of the lobsters.

Identify potential markets and opportunities that utilize existing consumer trends such as the slow foods movement and a renewed focus on healthy living.

Consider the growing Asian market. Due to high pollution levels of waters within South East Asia, there has been a rapid increase in demand from China for lobster that has been sourced from cleaner water sources. Furthermore, Australia and New Zealand were previously supplying the Chinese market but now are experiencing slowed distribution due to recent changes in import tariffs. This is an opportunity for market entry since the Asian markets pay a high premium for the spiny lobster.

Though the Florida market is generally not recommended as a target market for Quintana Roo’s MSC-certified lobster, the Quintana Roo fishermen could consider selling into this market for the peak lobster demand periods of January and February.

The Alliance should work with the TNC to synthesize an updated stock assessment in order to model how much more demand can be addressed and during which times it can be done. Otherwise, any sales strategy not linked with such assessment might jeopardize the sustainability of the fishery and reputation of the fishing community.

Limitations

The recommendations of this study have been done based on a seven-week engagement. Some limitations include:

- (in)ability to compare all suppliers of spiny lobster to the US in order to prepare a comprehensive analysis of the current and future competition;
- lack of primary research with consumers from different US states; future actions could include questionnaire and focus groups to assess price sensitivity and purchase criteria
- no preexisting studies that compare a side by side analysis of MSC certified lobster vs. non-certified lobster to illustrate consumer preferences within a US retail setting
● limited access to updated data on the import and export volume of lobster between Mexico and US; there is no specific institution that oversees such trade. Although certain geographic regions enforce that all production registered in details, this is not the case for other regions, such as Mexico.

**Conclusion**

The Nature Conservancy approached our team in order to explore economic opportunities within the United States for MSC certified Mexican lobster. Due to consumer price sensitivity for lobster and a lack of domestic recognition for the MSC label, we determined both retailers and consumers are not willing to pay premium prices for the sustainability certificate alone. Still, the US market can be a viable option for the Quintana Roo fishery under specific circumstances. Due to the high seasonal demand within Asian American markets, distributors would likely get a premium during the beginning of the year. In addition, high-end restaurants and retail chains are likely to buy from the fishery if they are able to market a unique narrative describing the fishermen’s eco-friendly harvesting practices. Traceability technology will be key in shifting the spiny lobster from a simple commodity to a story fishery. The US lobster market is crowded, both with other Caribbean importers and domestic New England lobster, yet there still lies opportunity in differentiation.
Appendix A – Spanish version of the Executive Summary

Este estudio analiza la posible demanda norteamericana de langosta caribeña (Panulirus argus) cultivada sustentablemente. Nuestro interlocutor es The Nature Conservancy (TNC); un miembro de la Alianza Kanan Kay. TNC trabaja para mejorar la gestión sustentable de refugios pesqueros y la conservación del mar en el estado mexicano de Quintana Roo. El Marine Stewardship Council (MSC) ha certificado recientemente seis cooperativas locales de pescadores gracias a su fuerte compromiso con prácticas pesqueras sustentables. Esas cooperativas ahora están analizando oportunidades para explorar nuevos mercados que valoren el cultivo sustentable de langosta y que vean la certificación como un activo para el producto final.

La conclusión es que no existe un mercado fuerte en Estados Unidos para la langosta caribeña de México; tampoco hay indicación de que consumidores ó minoristas tengan interés en pagar un precio más alto solamente por sustentabilidad. Además, dependiendo de la región, consumidores pueden preferir la langosta norte americana de aguas frías (Homarus Americanus). En regiones específicas de la costa, principalmente en Florida, el mercado estadounidense posee un industria activa de pesca de la langosta caribeña, aunque 80% de su producción se destine al mercado chino42. La venta de langosta mexicana podría expandirse en Estados Unidos si hubiera una manera de diferenciar su producto de los 20% de la producción doméstica que se quedan en EEUU y de todas las importaciones existentes. Además de sustentabilidad, trazabilidad ha surgido en el proyecto como factor clave de decisión en la preferencia del consumidor; luego, exportadores mexicanos deberían considerar promocionar la jornada y la historia de la langosta cuando estén evaluando el desarrollo de mercado y asegurando certificación de origen de la langosta a los compradores, sean ellos consumidores, restaurantes o minoristas.

La primera parte del estudio busca contextualizar los temas relacionados a la entrada en el mercado estadounidense, así como realizar la intersección entre mantener ecosistemas saludables y manejar las relaciones políticas a lo largo de la cadena de suministro. La segunda parte explica el mercado actual de langosta en los Estados Unidos, enfocándose en las preferencias de los consumidores relacionadas a langosta caribeña. La tercera parte detalla la cadena de suministro en México y explica el marco regulatorio que deben seguir exportadores de langosta para los EEUU. La parte final lista las recomendaciones principales para las cooperativas de Quintana Roo.

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42 Comisión de Pesca y Conservación de Vida Silvestre de Florida
Appendix B - Retailers’ Perception of North Atlantic Compared to Caribbean Spiny Lobster

- **Appearance.** The most notable difference in the spiny lobster found in the Caribbean and the cold-water lobster found in the North Atlantic is that spiny lobsters do not have edible claw meat. This immediately creates limitations for the use of spiny lobster—food establishments serving whole lobster only serve cold-water lobster so Caribbean lobster use in restaurants is largely limited to lobster tails. The second most important difference in the appearances of the North Atlantic and Caribbean lobster is the shell when cooked. The shell of a North Atlantic lobster has a distinctive red color when cooked whereas the spiny lobster shell is spotted. The American association of lobster with a red shell is very strong and can even be seen in the country’s largest seafood chain, Red Lobster. For this reason, restaurants tend to shy away from serving spiny lobster when the shell is visible. This tendency is exacerbated by the high price point of lobster—lobster tends to be one of the most expensive items on a menu and thus customers have very high expectations when they order it, expectations that a restaurant owner cannot risk disappointing.

- **Taste.** Most people interviewed noted that the taste of the North Atlantic and Caribbean lobster is similar. However, in some cases, North Atlantic lobster was considered “more flavorful.”

- **Texture.** Caribbean lobster is generally thought to be a coarser, less desirable texture than North Atlantic lobster.

- **Quality.** While quality can have many definitions, food establishments are very concerned with safety and consistency. They also want to be certain that the information they have been given about the product can be trusted. Several interviewees expressed general distrust for warm-water lobster due to concerns about corruption and lack of oversight/transparency. In the most extreme case, one restaurant operator declined to be interviewed and replied to our request, “I’m really no help here…Sustainability programs don’t work well in third-world economies. The indigenous people are more concerned about staying alive and paying off vigilantes. There is no record keeping on landings because there are so many day boats manned by individuals. Then there are numerous middle men to get to market. As well, who is going to do the critical bio-mass research; the Mexican government?”

- **Live Storage.** Lobster is typically stored live for use in restaurants. Cold-water lobster can survive for up to 6 months in a chilled cooler without being fed. When cold-water lobster is stored at a very low temperature, its metabolism is slowed to the point that it becomes dormant and does not require feeding. In contrast, a warm-water lobster cannot survive in water below 62 degrees Fahrenheit and therefore must continue to be fed, thereby making the species more operationally burdensome and costly to use. Caribbean spiny lobster also does not perform well against other varieties of spiny lobster in this

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44 Florida Fish and Wildlife Conservation Commission
45 Florida Restaurant Owner. Asked to remain anonymous
regard—Australian lobster, a spiny lobster variety currently exported heavily to China, is considered a ‘cool-water’ lobster, tolerating water temperatures as low as 45 degrees Fahrenheit.

- **Ease of cooking.** Cold-water lobster also has an advantage in its ease of cooking. Chefs find it easier to prepare cold-water lobster because it is more forgiving: when overcooked, a cold-water lobster is still edible whereas an overcooked warm-water lobster is not.46

### Appendix C - An example of the lobster supply chain from Quintana Roo into the US (frozen tail)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Harvesting</td>
<td>Fishermen catch lobster according to the orders (whole, no shell, tail only). Quintana Roo regulation forbids catch of lobsters smaller than 13.5 cm to allow lobster to reach sexual maturity and sustain species reproduction. Sustainable practices reduce bycatch.</td>
<td>USD 5.84</td>
</tr>
<tr>
<td>2. Dealers/ Buyers</td>
<td>If the product is US bound, it will abide by FDA regulation. Plant will assure hygiene of product, which does not always happens in the fisheries. Most important drivers: price and size, to comply with FDA requirements. Price paid to fishermen is always calculated based on the price imposed by US importer. Tail is where value is, so most buyers will only buy and resell tails. Ship to US in containers (at least 15 tons) or air planes (more common for live lobster)</td>
<td>USD 15.50</td>
</tr>
<tr>
<td>3. US Importer</td>
<td>Cares about price, size, volume, and FDA approval. Increasing demand makes US importer sign contracts with different dealers abroad.</td>
<td>USD 23.00</td>
</tr>
<tr>
<td>4. Consumer facing</td>
<td>Most Spiny lobster is sold to foodservice companies47. May also be sold to supermarkets and restaurants</td>
<td>Varies according to quality, customers segments</td>
</tr>
</tbody>
</table>

**Source:** Designed by authors based on interview with Mexican Buyer

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46 Florida Fish and Wildlife Conservation Commission
47 Dick Jones, COO, Resiliensea Group Inc.