CONNECTING UNDERVALUED RHODE ISLAND SEAFOOD WITH LOCAL FOOD PANTRIES:

A WIN-WIN FOR FISHERY PRODUCERS & FOOD INSECURE CONSUMERS?

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I. Problem Statement

Assuring that local seafood is available to all Rhode Islanders is an important part of integrating local seafood into a sustainable food system. But until now, including Rhode Islanders facing food insecurity in the local seafood supply chain has been complicated. In the past, Rhode Island fishermen and their collaborators have made several efforts to provide seafood to food pantries, but they met with mixed success and had low potential for replication. However, despite lack of a clear roadmap, the Rhode Island's charitable food distribution network remains committed to integrating low-cost seafood into their offerings, and many fishermen and seafood dealers are eager to play a part.

The purpose of this project is to analyze the feasibility of bringing abundant, low-cost seafood to food pantry clients in Rhode Island. Our hope is that this connection can bring benefits to all participants along the seafood supply chain, from boat to plate, by expanding demand for undervalued seafood while supplying food pantry consumers with a nutritious and appetizing local protein source.

This project fits into two broad societal goals. The first is to assure access to healthy, local, and culturally appropriate foods for all members of society. The second is the diversification of demand for local seafood species. Rhode Island and the rest of New England have recently seen a surge in promotion of "underutilized" species, alternatively called "underappreciated" or "underloved" species. In Southern New England, these include dogfish, skate, and scup. Efforts to promote these species are driven by a desire to expand market opportunities, boost revenues for local fishermen and seafood businesses, and utilize a more representative array of products from the local ecosystem.

While the low price of these species may represent a drawback for fishermen, it can potentially represent an opportunity for low-income and food insecure Rhode Islanders to obtain local seafood. To highlight this duality, we define a new term, "undervalued," to include both of these attributes: fish species or parts whose potential value to consumers is greater than their current low returns to producers. For the purposes of this project, the category of "undervalued" seafood includes:

I. Local fish species that are highly abundant but do not have a well established local market and can only be sold at a very low price, if at all,
II. Parts of fish that are do not have a well established local market and do not receive a high price, or
III. Fish that experience surplus at certain times of the year, driving their price to levels low enough to become accessible to food pantries.

It is important to emphasize that "undervalued" does not imply low quality or poor nutritional value. Rather, it means that the price is low *relative to* its potential value to society. In other words, it is effectively available at a "discount" because of its lack of established market share.

Undervalued seafood products represent potential opportunities on both sides of the seafood supply chain. On the supplier end, these include possible broadening of local market demand to

include a wider array of species and higher margins to fishermen and seafood dealers. On the consumer end, they include opportunities for food insecure consumers to obtain local seafood, currently unavailable through emergency food services. Expanding the market share of these fish can create a more resilient fishing industry and increase the total value of fisheries in Rhode Island. Greater inclusion of undervalued fish products in the marketplace can provide food pantry clientele with an affordable, nutritional local food option. It can also expand availability of culturally appropriate foods for immigrant consumers from backgrounds where fish is a prominent part of their diets. But in order for this win-win to occur, all parties involved (i.e. fishermen, seafood dealers, food pantries, and their clients) must benefit. The goal of this project is to figure out how to achieve this delicate balance of benefits.

II. Historical Background

This is not the first time that Rhode Islanders have made an effort to offer local seafood through the emergency food distribution network. Between 2003 and 2005, the Commercial Fisheries Center of Rhode Island spearheaded a program to donate regulatory bycatch of scup and fluke to the Rhode Island Community Food Bank.[1] Regulatory bycatch consists of fish that is caught but cannot be sold because conservation regulations prohibit it from being landed. For that project, fishermen were seeking to donate fish that they caught but could not land because it exceeded their legal daily limit, rather than throwing it back in the water. They were supported in this effort by the former Rhode Island Seafood Council, the Rhode Island Community Food Bank, the Department of Environmental Management, Senator Jack Reed's office, and Rhode Island Sea Grant.

According to Dave Beutel, who worked on this project on behalf of Rhode Island Sea Grant, fishermen's level of satisfaction with this project hinged on the willingness of fishery regulators to allow fishermen to donate this excess catch without deducting the poundage from the daily quotas set by interstate regulators for these species. This last part proved to be a sticking point, as fishermen were not able to gain the regulatory approval to land fish in excess of their daily limits without the extra biomass being deducted from their quotas.

Despite the fact that they were unable to arrange for an exemption to the regulations requiring them to throw excess catch back in the water, fishermen donated 1,000 lbs. of whole scup to the RI Community Food Bank as part of this project. The Food Bank was able to pick up the fish in their refrigerated trucks and process and package the fish by drawing on the skills of their culinary jobs training program instructors. With all of these components in place, the donated fish was successfully distributed to food pantry clients. However, despite the fact that this effort received a lot of positive publicity, Andrew Schiff of the RI Community Food Bank says that "it was an impossible amount of work" and would not make sense as a regular Food Bank program, barring a significant increase in efficiency. Moreover, with today's tighter health regulations, the Food Bank would no longer be able to repackage the seafood in its facility.

[1] Dave Beutel, Coastal Resources Management Council (Personal Communication, January 31, 2012) and Andrew

Experience in other regions shows that integration of seafood into emergency food distribution networks is possible. On the West Coast, an organization called Sea Share specializes in facilitating transactions of low-cost and donated seafood to providers of food relief. Sea Share achieves an economy of scale by partnering with fishermen, seafood processors, and monetary donors in the Pacific Northwest to supply donated seafood to food banks across the country. According to Sea Share's website, it is "the only organization that focuses on seafood, and the seafood industry, as a source of nutrition for hunger-relief... Sea Share's donation model leverages the help of fishermen, processors, service providers, and financial donors who want to give back in their communities. Many of our donors could not participate if Sea Share did not coordinate and combine donations into a single finished product.[2]" Among other things, Sea Share has facilitated the distribution to food pantries of halibut caught as bycatch in the Alaska pollock fishery.[3] Sea Share's operation could provide a model for the integration of seafood into the food pantry distribution sector in Rhode Island.

III. The Food Bank's perspective

The Rhode Island Community Food Bank, which acts as the central buyer and distribution center for Rhode Island food pantries, has a strong interest in facilitating provision of Rhode Island seafood to its food pantry affiliates. But Executive Director Andrew Schiff notes many challenges associated with making this new supply chain a reality.[4]

On the positive side, food pantries are better equipped than ever before to receive and store seafood. A chief barrier to moving local seafood into the food pantry distribution network during the 2003-2005 attempts was the limited capacity of food pantries to handle perishable foodstuffs. However, 40 Rhode Island food pantry facilities received freezers and coolers in the year 2014. This increased storage space for frozen food items represents the elimination of one of the biggest hurdles to getting local seafood into food pantries. Transportation is also not a major hurdle, at least not at first. The Food Bank is willing to pick up seafood from seafood dealers anywhere in Rhode Island in its refrigerate trucks (however, in the long run, each pick-up would need to consist of a pallet or more to justify the expense).

However, other challenges remain. One of the largest ones relates to packaging: the Food Bank requires seafood to be portioned and packaged in frozen, family sized packs (2 lbs., or enough to feed a family of four). All packaging activity needs to be done by a seafood dealer. The Food Bank and food pantries do not have the licenses required to package seafood at its facility. However, most seafood dealers sell seafood in wholesale-size boxes, and do not necessarily have the processing capacity or packaging stock to make seafood available in smaller portions.

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[2] "About Sea Share." Available online at: http://www.seashare.org/aboutseashare.htm

[3] "Halibut Bycatch Delivered to Kotzebue Food Bank" Fairbanks Daily News - Miner. Available online at: http://www.newsminer.com/news/alaska_news/halibut-bycatch-delivered-to-kotzebue-food-bank/article_0bd33a1a-deaa-11e2-8066-001a4bcf6878.html

[4] This section is based on an interview with Andrew Schiff, Executive Director of the Rhode Island Community Food Bank, conducted on January 27, 2015.

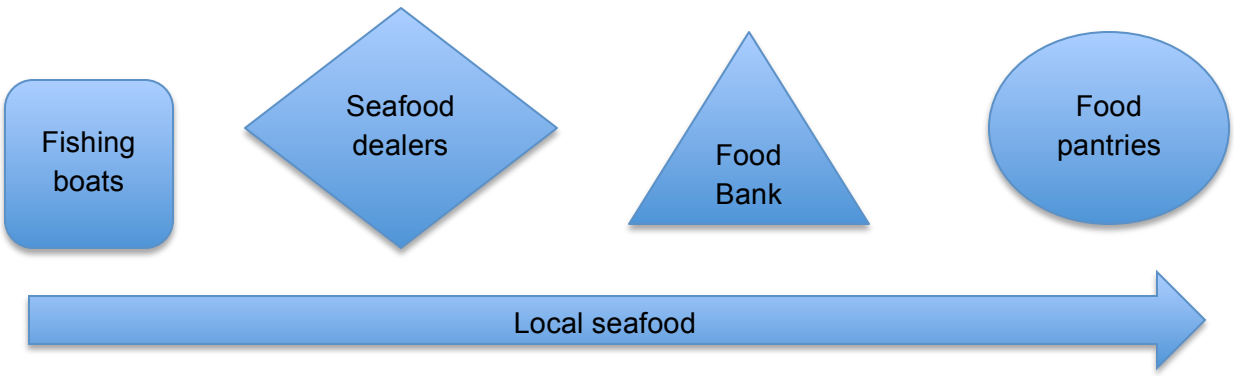
A second major challenge is the complex supply chain inherent to the seafood trade, even at the local level. The seafood supply chain is necessarily longer and more complicated than that of other local products. Farmers, who often donate produce to the Food Bank when they have surplus and don't want to bear the cost of picking, packing, and transporting it at a loss, can simply donate it directly to the Food Bank. Often, a third-party broker arranges these transactions: brokers stay in contact with farmers during harvest time, and arrange picking and transport when product becomes available. Brokers cannot take a tax deduction for this labor, so they typically charge about $0.20/lb. to cover their labor. Farmers receive a tax write-off for their charitable donation of produce.

In contrast to farmers, fishermen cannot donate their product directly to the Food Bank. Regulations prohibit fishermen from transferring their catch to anyone other than a licensed seafood dealer. This means that a seafood dealer will be required to play an intermediary role. This role goes beyond that of the broker who arranges a transaction, for dealers must take legal custody of the fish by purchasing it or accepting it as a donation. But since fishermen cannot receive a tax write-off when donating product to a for-profit entity, there is no incentive for fishermen to donate their fish to a dealer. Instead, getting fish to food pantries will require dealers to purchase seafood from fishermen, and both parties will need to cover their costs.

Whether it is feasible for food pantries and the Food Bank to cover those costs is an open question. The Food Bank does have a budget to buy food at very low prices, and Director Andrew Schiff anticipates that a project to get local seafood into food pantries would have high potential to raise donations and grants. But these funds can only barely offset the *costs* of packaging and transporting the seafood; it would be neither ethical nor feasible for anyone in the supply chain to make a *profit*. Therefore, one of the central challenges facing creation of this new supply chain is to obtain seafood at extremely low prices. The maximum amount that the Food Bank estimates it can pay for local seafood is $1.00/lb.

We suspect that if any local seafood can be made available to the Food Bank at this price, it may come in the form of underutilized species and whole fish. The Food Bank is very willing to use unfamiliar species, and ready to commit its culinary instructors to the task of building consumer awareness about this seafood through seafood cooking demonstrations. However, the Food Bank is less interested in offering whole fish, because of the added inconvenience to the Food Bank, food pantries, and consumers of dealing with unprocessed product.

Figure 1. The seafood-to-food-pantry supply chain consists of a minimum of four steps.



IV. Seafood dealers' perspectives

As described above, seafood dealers are pivotal to this proposed new supply chain because they must, by regulation, receive seafood from the fishermen. To gauge seafood dealers' perspectives on the idea of participating in a seafood-to-food-pantry supply chain, we performed a series of unstructured in-person depth interviews with 5 seafood dealers as well as an online survey of 7 seafood dealers/processors (see questionnaire in Appendix A). We reached out to all 12 seafood dealers in the state of Rhode Island engaged in dealing and processing finfish (as opposed to only shellfish or lobster), and 7 agreed to participate in our interview and/or survey. Participating dealers were SeaFreeze (Narragansett), Sea Fresh (North Kingstown), Town Dock (Narragansett), Narragansett Bay Lobsters Inc. (Narragansett), and the Local Catch (Narragansett), Tony's Seafood (Warren), and Brown Family Seafood (Narragansett).

These dealers represent a range of operational scales and processing methods. Processing methods employed by different dealers include heading and gutting, filleting, and freezing fish. Some dealers operate exclusively on a wholesale basis, but others also sell seafood on a retail basis, either by selling seafood at local farmers' markets or through their own seafood shops. Some focus on local markets while others have an export orientation. Some have flash freezers that get fish down to very low temperatures quickly, while others have only storage freezers (i.e., freezing must be done prior to purchase).

Figures 2 and 3 show the breakdown of operational scale and business strategies utilized by the seven seafood dealers/processors who participated in the online survey. Large-scale processors generally have more advanced processing equipment but might specialize in large volumes of a few species. In contrast, small-scale processors generally rely on human labor, which gives them greater flexibility but also higher per-pound processing costs. Each experiences different pros and cons when it comes to participating in a seafood-to-food-pantry supply chain.

Figure 2. Business activities of dealers surveyed

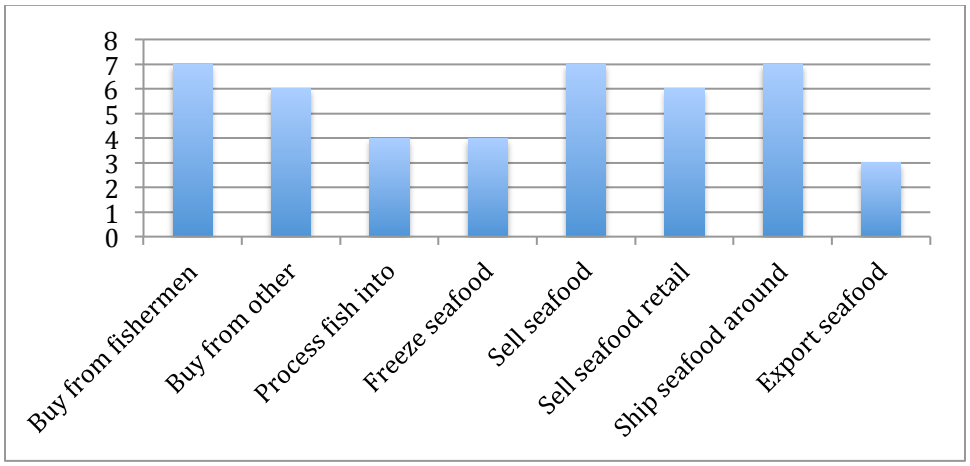
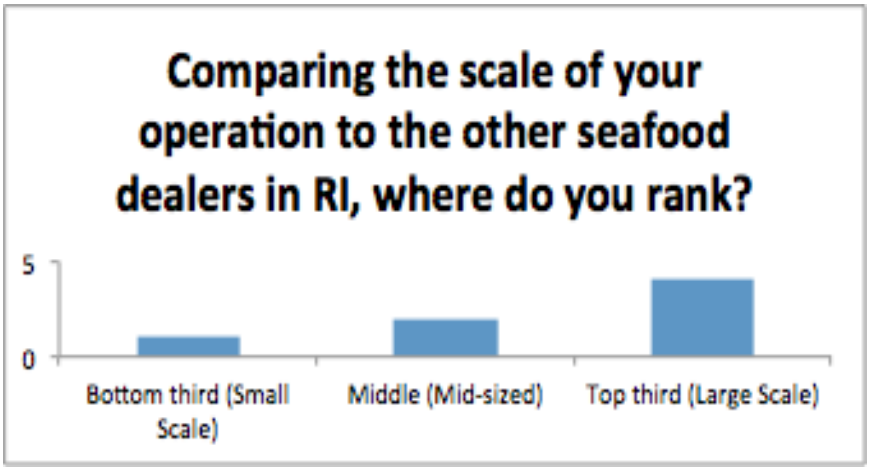


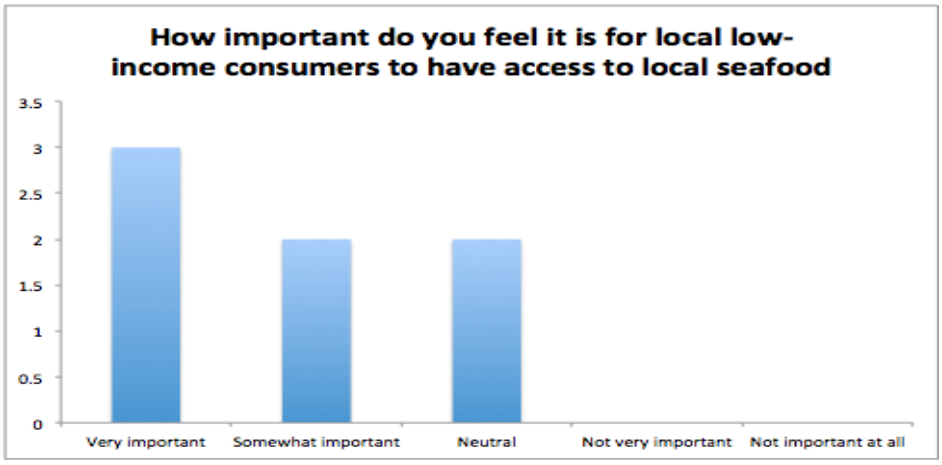
Figure 3. Operational scale of dealers surveyed



Our intention with these interviews and surveys was to gather information about which fish could be considered "undervalued" and what costs are associated with processing and packaging them. Our goal was to find an equilibrium price allowing processors to package and process the fish without suffering a loss. We also inquired about available volume of undervalued fish, barriers to processing them, and how important each dealer felt it is to expand local markets for them. From these conversations, we learned the following lessons.

1. "It might be cheaper just to buy hot dogs."
Many dealers expressed a desire to give back to their community by supporting local food pantries (see Figure), but some expressed doubts about whether providing seafood was the most cost-effective way to do so. One suggested that it might be "better worth our time" to simply donate money to the Food Bank or to purchase and donate imported seafood, than to provide their own local seafood product at sharply reduced rates. This raises an important point: how can local undervalued seafood "compete" with the often heavily processed and cheap protein sources (e.g., hot dogs) available to food pantries from other sources?

Figure 4. Seafood dealer support for assuring access to local seafood



2. Undervalued fish exists …

In spite of the comment we received that it would be cheaper to just buy imported seafood, all of the dealers we talked to did identify types of fish that they could donate or sell to the Food Bank for under $1.00/lb., the maximum price that the Food Bank is able to pay. The fish species that came up most frequently in conversation were scup, sea robin, spiny dogfish, skate, whiting, and herring. Based on the frequency of these responses during our initial set of unstructured interviews, we designated these six species as our undervalued species of interest for the remainder of the project, singling them out by name in the subsequent structured survey of seafood dealers. Dealers also mentioned several products (forms or parts of certain species) that can be highly affordable, at least at certain times of year: codfish naps (belly trim), yellowtail fillets caught at the time of spawning, and off-specification skate wings. Table 1 summarizes these results.

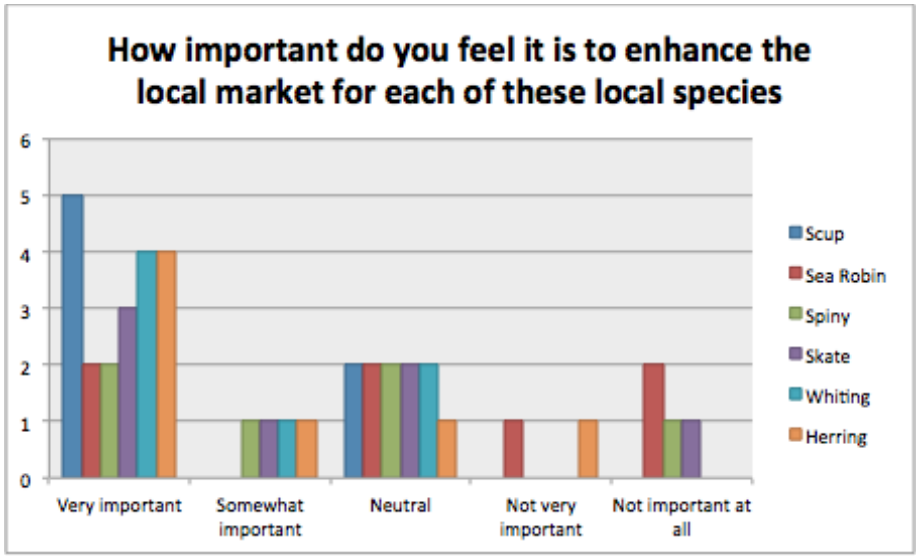
Table 1. Undervalued seafood products for possible inclusion in seafood-to-food-pantry supply chain, based on interviews and surveys with seafood dealers.

Species/Product	**Season**[5]	**Price estimate**	**Available format**
Herring	Winter	Stable, around $0.10 to $0.35 + labor, freezing, packaging	Whole
Whiting	Summer-Fall	Variable, from $0.25 to $1.25 + labor, freezing, packaging	Whole
Scup	Year-round	Variable, from $0.25 to over $1.20 + labor, freezing, packaging	Whole
Sea robin	Year-round	Stable, $0.25/lb. + labor, freezing, packaging	Whole
Dogfish	Year-round	Stable, $0.18 + labor, freezing, packaging	Filleted
Skate	Year-round	Generally over $1.00/lb.	Wings
Off-spec skate wing	Year-round	$0.75 + packaging	Irregular wings (too small, etc.)
Spawned-out yellowtail flounder	Early spring		Fillets
Cod naps (belly trim)	Winter		

[5] Seasonality of fish is not important from a freshness perspective, since all fish made available to food pantries would need to be frozen, and frozen fish has a two-year shelf life. Seasonality may be relevant if dealers do not wish to hold on to product for any longer than they have to, for instance if they need to make space in their freezers for other things.

Figure 5 depicts the interest among survey respondents in developing more robust local markets for the six undervalued species identified in the unstructured interviews. Dogfish and sea robin registered low interest, since they require a lot of labor to retrieve the meat and the end result is less meat per fish compared to more high-value, high-yield species. Conversely, scup, whiting, and herring were the top three species in terms of importance of enhancing the market. Most processors already have a great deal of experience processing and/or selling these latter fish, but would like a more reliable local market for them.

Figure 5. Importance of improving local markets for undervalued species



3. …But it gets expensive once it's processed.
Although dealers said that the six undervalued species listed above could be available for $1.00/lb. or less (as low as $0.25/lb.), they also said that processing them into family size portions of fillets would make these same species as expensive as $3.00 or $4.00/lb., due to the costs of labor. Not to our surprise, our very restrictive proposed price range drastically limits the types of processing that would be feasible.

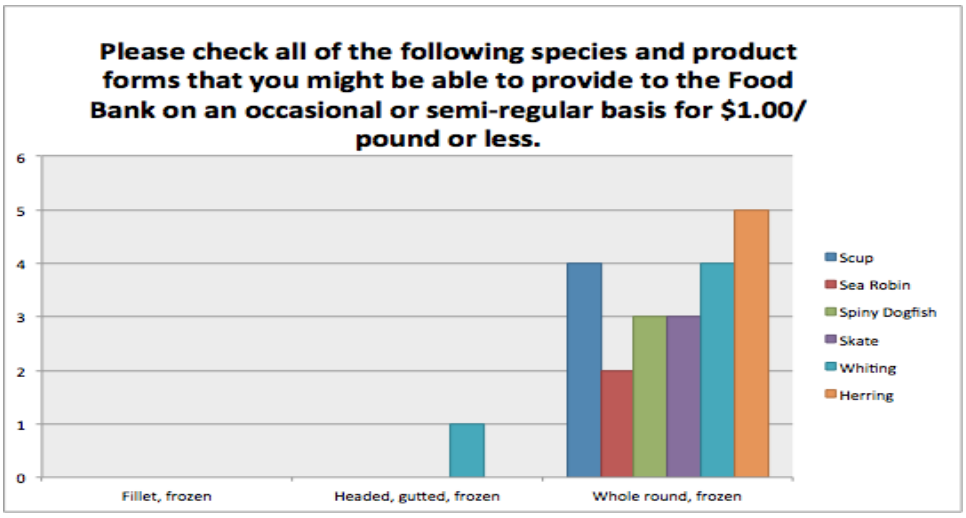
Figure 6 indicates dealers' ability to provide the six undervalued species of interest to food pantries for $1.00/lb. or less. When restricted by this price point, dealers responded that the six undervalued species would only be available in "whole round, frozen" and potentially "headed and gutted, frozen" formats. This is the most cost-effective method of processing fish because it requires the least labor. Dealers did not list any species as being available for $1.00/lb. in filleted form. Moreover, several of the six species are simply never filleted at all. Small fish such as herring and whiting are only sold whole or headed/gutted, due to their small size.

Thus, while the six undervalued species are highly abundant to Rhode Island fishermen and command a very low ex-vessel price that in theory would make them affordable to food pantries, the costs of processing and packaging them in family-sized portions are high enough to negate this affordability. In fact, one dealer told us that the fish itself is probably the

cheapest part of the end price: labor and packaging cost more than the ex-vessel price of the fish. Labor can cost around $0.25/lb., according to a smaller dealer. Freezing also costs money – an estimated $0.15/lb., according to a larger dealer.

Unfortunately, there appears to be an inverse relationship between high biological abundance and low ex-vessel price, on the one hand, and ease of preparation and processing costs, on the other. Simply put, the ocean contains an increasing proportion of fish that are harder for processors to handle. Studies have shown that Rhode Island waters have experienced a trend towards smaller-bodied fish,[6] possibly related to warming water temperatures – a trend which is expected to continue. From the seafood industry perspective, this trend means an increasing supply of fish that offer low prices to fishermen while requiring high inputs by processors to become marketable to the local public. The take-home point is that in order to assure enough volume and low enough prices for a seafood-to-food-pantry supply chain, food pantries may need to consider offering whole fish, in spite of the added inconvenience.

Figure 6. Seafood available for $1.00/lb. or less



4. Each dealer's participation needs to be tailored to its business model.
Every dealer is different, and each dealer's participation in a seafood-to-food-pantry supply chain will need to be customized to its particular business model. Some dealers stated that they would prefer to have a standing order from the Food Bank (e.g., 50,000 lbs. of mackerel over the course of a year). "Then you can put up the best quality product when we have it available in space and time," said one dealer. Others would prefer that the Food Bank or a third-party agent play the role of broker, checking in with them periodically to ask if they have any seafood to donate. Another difference relates to packaging: some dealers would prefer to use their own

[6] Collie, Jeremy S., Anthony D. Wood, and H. Perry Jeffries. 2008. Long-term shifts in the species composition of a coastal fish community. *Can. J. Fish. Aquat. Sci.* 65: 1352–1365.

packaging, but others do not have family-size packaging and would appreciate it if the Food Bank or a third-party agent acting as broker could provide packaging.

V. Food Pantry Perspectives

Understanding the needs of Rhode Island food pantries is essential for predicting success at the consumer end of our proposed seafood-to-food-pantry supply chain. To gauge food pantry needs, we developed an online survey consisting of thirteen questions addressing the interest and feasibility of the food pantries obtaining such local species (see Appendix B). Our sampling protocol for the food pantry directors was to allow the Rhode Island Community Food Bank to handpick a selection of representative pantries amenable to answering our questions. The Food Bank distributed the survey electronically to a handful of food pantry directors, and we received four complete survey responses.

Our intention with the food pantry director survey was to gauge directors' sense of their clientele's interest in receiving undervalued fish. In the survey, we asked directors to generalize about their clients' age, sex, ethnicity, income, seafood knowledge/awareness, readiness to prepare fish, location within the state, and number of times they frequent the pantry per week.

All respondents expressed interest in obtaining local seafood, saying that clients are appreciative of all available food, and that fish products are usually consumed quickly. All respondents indicated that their clientele would be familiar with the process of cooking frozen fish fillets, that they have access to resources such as stoves and other kitchen appliances, and that they have time to prepare home-cooked meals.

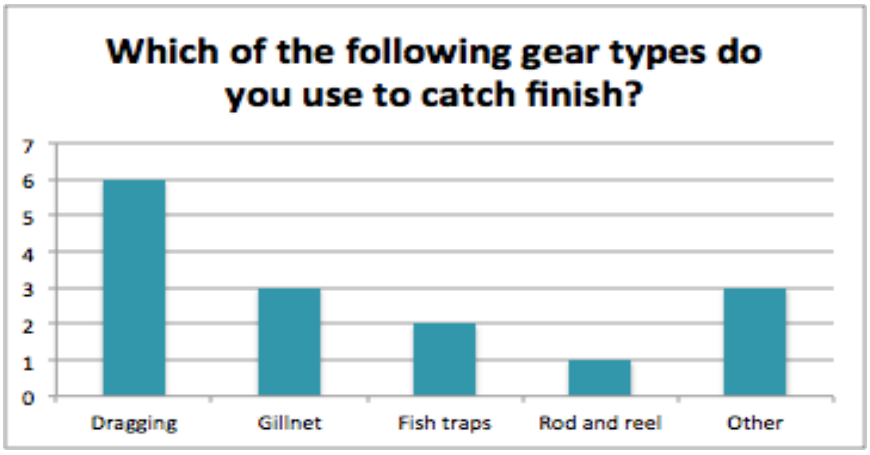
We received a mixed response when we asked about clients' willingness to utilize whole fish. Some directors thought that cooking whole fish may be too labor-intensive, while another felt that whole fish was not a problem at all, saying, "fish is fish…80% of the [clientele] population is from Central and South America, where fish and whole fish are staples in the diet."

The four pantry directors who responded to our survey said that their primary clientele, collectively, is made up of families and seniors. We found no notable correlation between clients' sex or race and their anticipated interest in local seafood. However, some pantry directors hypothesized that the immigrant populations that they serve (hailing from, but not limited to, Central and South America, Russia, and various Asian countries) may be more interested in, or educated about, preparation and consumption of whole fish, than non-immigrants.

VI. Fishermen's Perspectives

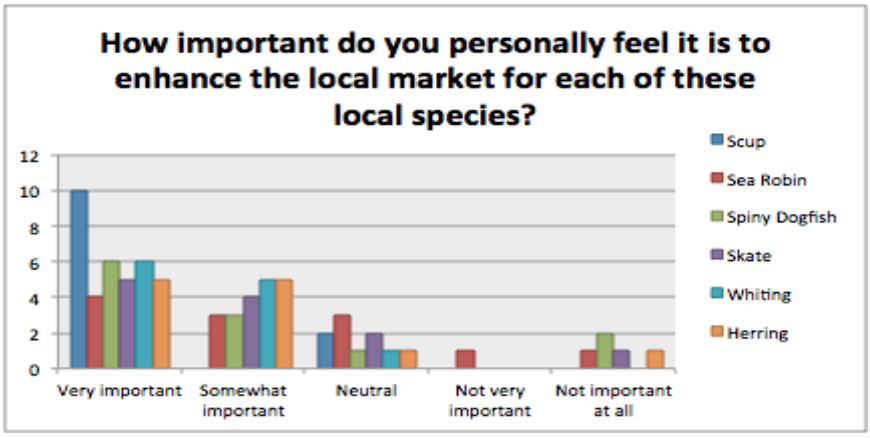
To gauge how a potential seafood-to-food-pantry supply chain could benefit commercial fishermen, we conducted an intercept survey in the port of Galilee (see Appendix C). We located fishermen by walking the docks on three different days and different times. This resulted in complete surveys for 13 fishermen of varying gear types (see Figure 7).

Figure 7. Gear types interviewed



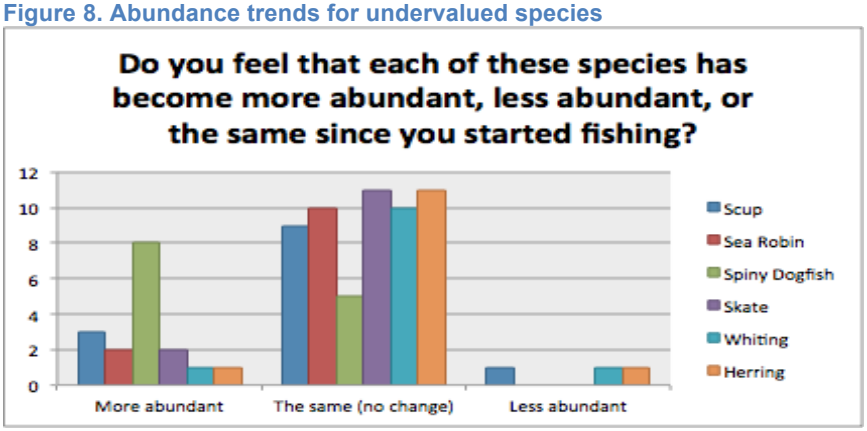
To understand more about how our six candidate species could benefit fishermen through greater marketing, we asked fishermen how important they felt it was to enhance the local market for each of them. Responses suggested that most fishermen feel it is very important or somewhat important to enhance the local market for all six underutilized species, with scup being a high priority species for expanded marketing (see Figure 8).

Figure 8. Importance of enhancing the local market for undervalued species



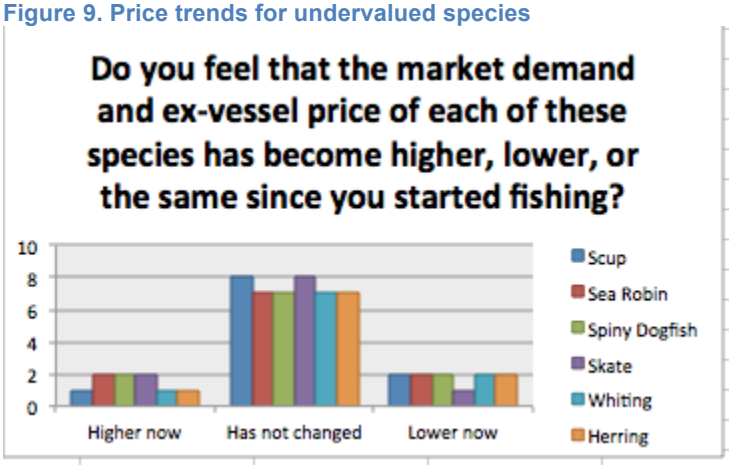
We also wanted to know if these six species could sustain an expanded market in the long run, so we asked fishermen if each of the species is increasing in abundance, decreasing in abundance, or staying the same. Figure 8 shows that responses to this question varied, but most fishermen saw the six species increasing or staying the same. In particular, spiny dogfish seems to have skyrocketed in abundance in recent years, and could perhaps benefit the beginning of the supply chain most from an improved local market.

Figure 8. Abundance trends for undervalued species



Finally, we asked fishermen about trends in price for these species. Most fishermen felt that prices for most species had either decreased or stayed the same (see Figure 9). Perhaps it can be concluded from this question that due to low demand, the market does not have many active buyers or sellers and therefore the price has remained flat.

Figure 9. Price trends for undervalued species



VII. Conclusion

Our research leads to the general conclusion that creation of a sustained seafood-to-food-pantry supply chain in Rhode Island is doable, but difficult. Interest is strong on both sides of the supply chain, but logistics are not straightforward. Suitable undervalued species are widely available, but figuring out how to maintain their affordability *after* labor and freezing costs are factored in can be tricky.

One of the central lessons from our project relates to whole fish. The Food Bank expressed disinterest in obtaining and providing whole fish for its pantry clients, but our seafood dealer interviews suggested that many fish will have to be left whole to remain below the Food Bank's price ceiling of $1.00/lb. or because they are small fish by nature and do not lend themselves to

filleting. Moreover, our food pantry director survey suggested that some clients – namely, immigrant populations – might in fact be quite comfortable with whole fish. In sum, it may be worthwhile to pursue integration of whole, frozen fish into Rhode Island's food pantry distribution system, even if it only benefits a small segment of the population served by food pantries in the state. Any attempts to do so will need to focus not on *whether* integrating seafood into food pantries is feasible, as this study has done, but rather *where* integrating seafood into food pantries is feasible.

A potential pilot project to integrate Rhode Island seafood into the local food pantry distribution system should begin by selecting a wide range of food pantries representing clientele of different ethnic origins, to test the theory that clients' comfort and appreciation of whole fish are ethnically mediated. A pilot project will require a third party to work closely with seafood dealers to develop customized Food Bank sales/donation plans and processes that can work on a sustained basis with increasing volumes. A pilot project might benefit by starting with seafood sales/donations to nonprofit meal sites, and then graduate to selling/donating seafood to food pantries;[7] since meal sites obtain food in bulk, this would eliminate the immediate need for small packaging, priming the supply chain one step at a time.

In conclusion, many unknowns must be overcome before a sustainable connection can be made between Rhode Island's fishing fleet and emergency food system. This effort will require attention to individualized needs and characteristics – of the species offered, of the business models of the dealers who participate, and of the needs and interests of food pantries clients. With the local foods movement currently in full bloom in Rhode Island, the time has never been better to undertake the hard work of answering these questions.

[7] Personal communication, David Rocheleau, Executive Chef, Crossroads RI. September 24, 2015.

Appendix A: Seafood Dealer Survey

The purpose of this survey is to evaluate the feasibility of bringing low-valued fish to low-income consumers in Rhode Island. This survey is a joint effort of Eating with the Ecosystem and a URI Capstone course in the Environmental and Natural Resources Economics Department. The results of the survey will be used to develop a white paper that will be shared with the public and policy makers; however, specific names will remain confidential. We will not share any information provided in a way that can be traced to you without additional consent.

Our mission through this survey is to ascertain the potential for connecting low-value, plentiful local seafood (aka "underutilized seafood") with Rhode Islanders in need through the Food Bank / food pantry distribution system. Our hope is that by identifying which seafood products are best suited for this form of distribution, we will be able to design a "win-win" situation that benefits fishermen, seafood dealers, and low-income consumers. We need your help to better understand the needs of seafood dealers and processors in designing such a system.

Eating with the Ecosystem is attempting to secure funding for a pilot project to integrate local low-value species into the food pantry distribution system starting sometime later this year. If this funding effort is successful, we would like to invite you to be part of it.

** Required*

Which of the following describe the way your operation does business? *
Check all that apply.

- ○ *buy seafood directly from fishermen*
- ○ *buy seafood from other dealers*
- ○ *process seafood into fillets*
- ○ *freeze seafood*
- ○ *sell seafood to wholesale markets*
- ○ *sell seafood to retail markets*
- ○ *sell seafood directly to consumers*
- ○ *ship seafood to other U.S. locations*
- ○ *export seafood to other countries*

Comparing the SCALE of your operation to the other seafood dealers in Rhode Island, where do you rank? *

- ○ *Bottom third (Small Scale)*
- ○ *Middle (Mid-sized)*
- ○ *Top third (Large Scale)*

How important do you feel it is for local low-income consumers to have access to local seafood? *

- ○ *Very important*
- ○ *Somewhat important*
- ○ *Neutral*
- ○ *Not very important*
- ○ *Not important at all*

How important do you feel it is to enhance the local market for each of these local species? *

	Very important	*Somewhat important*	*Neutral*	*Not very important*	*Not important at all*
Scup					
Sea Robin					
Spiny dogfish					
Skate					
Whiting					
Herring					

The Food Bank estimates that it will be able to pay no more than $1.00/pound for frozen 2-pound packages of local seafood. Please check all of the following species and product forms that you might be able to provide to the Food Bank on an occasional or semi-regular basis for $1.00/pound or less. *Please check all that apply. (Note: The Food Bank prefers frozen fillets whenever possible; however, we realize that may not always be feasible for processors.)*

	Fillet, frozen	*Headed, gutted, frozen*	*Whole round, frozen*
Scup			
Sea Robin			
Spiny Dogfish			
Skate			
Whiting			
Herring			

Please list any OTHER items that you might be able to supply to the Food Bank on an occasional or semi-regular basis for $1.00/pound or less (frozen only).

Please choose, from the products listed above, the five products that you would be MOST INTERESTED in selling to the Food Bank for $1.00/pound or less, in order of preference. Please briefly describe any limits or conditions regarding the product volume, availability, seasonality, or price fluctuations that would be relevant to consumers such as the Food Bank.

Product #1 (choose a species and product form): product volume, availability, seasonability, price fluctuations, etc.

Product #2 (choose a species and product form): product volume, availability, seasonability, price fluctuations, etc.

Product #3 (choose a species and product form): product volume, availability, seasonability, price fluctuations, etc.

Product #4 (choose a species and product form): product volume, availability, seasonability, price fluctuations, etc.

Product #5 (choose a species and product form): product volume, availability, seasonability, price fluctuations, etc.

The Food Pantry requires seafood to be frozen in family-sized portions. This means 2 pounds of fillets or a comparable portion of whole or headed-gutted frozen fish. Do you prefer to supply your own packaging or to receive packaging from the Food Bank? How much of a difference does this make in your willingness to participate in a Food Bank pilot project?

Which of the following describes your preferred method for receiving orders from the Food Bank?

- *Standing order: The Food Bank commits to buying a certain dollar amount of seafood from you per year; it is up to you how and when you fill that order.*
- *Ad-hoc purchasing: Food Bank buyers or their intermediaries call you up periodically to find out what you have available in surplus and to place orders based on your response.*
- *Other:*
-

If Eating with the Ecosystem is able to obtain funding for a pilot project, are you interested in participating?

- *Yes*
- *No*
- *Maybe*

Appendix B: Food Pantry Directors Survey

The purpose of this survey is to evaluate the feasibility of bringing low-value fish to low-income consumers in Rhode Island. This survey is a joint effort of the nonprofit Eating with the Ecosystem and a URI Capstone course in the Environmental and Natural Resources Economics Department. We are interested in the possibility of a win-win that would benefit fishermen by creating greater local market demand for these species and benefit food pantry consumers by providing healthy, nutritious seafood. Low-value, or "underutilized", fish are those that are plentiful in the ocean yet suffer from an underdeveloped local market, although they are widely consumed in other countries.

We hope to secure funding for a seafood-to-food-pantry pilot project at a later date. If we are successful in securing funding, we would be providing low-value fish such as herring, whiting, skate, scup, dogfish, and sea robin, in whole or processed form, in frozen family-sized (2-lb) portions to pantries for distribution.

We are relying on your familiarity with your clientele to help us design this pilot project in a way that meets the needs of your pantry's community. We realize that you may not be familiar with all of these fish, so please answer these questions to the best of your ability.

The results of the survey will be used to develop a white paper that will be shared with the public and policy makers; however, specific names will remain confidential. We will not share any information provided in a way that can be traced to you without additional consent.

** Required*

1. On a scale from 1-5, how interested would your clients be in obtaining frozen family-size portions of local low-value seafood? *

- *5. Very Interested*
- *4. Somewhat Interested*
- *3. Neutral*
- *2. Not Very Interested*
- *1. Not Interested at all*
- *I don't know*

Please explain your answer:

On a scale from 1-5, how well equipped do you think your clients are when it comes to having adequate facilities to prepare fish (access to refrigerator, stove, etc)? *

- *5. Well equipped*
- *4. Somewhat equipped*
- *3. Neutral*
- *2. Not well equipped*
- *1. Not equipped at all*
- *I don't know*

How much of a difference do you think that access to facilities would make in your pantry's clients' interest in using local low-value seafood?

3. On a scale from 1-5, to what degree do you think that busy schedules and time limitations would get in the way of clients utilizing seafood? *

- *5. Time is a significant barrier*
- *4. Time is a somewhat important barrier*
- *3. Neutral*
- *2. Time is not much of a barrier*
- *1. Time is not a barrier at all*
- *I don't know*

How much of a difference do you think that time limitations and busy schedules would make in your pantry's clients' interest in using local low-value seafood?

4. On a scale from 1-5, how much familiarity do you think your clients possess when it comes to the cooking skills necessary to prepare fish? *

- *5. Very familiar with seafood preparation*
- *4. Somewhat familiar with seafood preparation*
- *3. Neutral*
- *2. Somewhat unfamiliar with seafood preparation*
- *1. Very unfamiliar with seafood preparation*
- *I don't know*

How much of a difference do you think that familiarity with seafood and skills to prepare it would make in your pantry's clients' interest in using local low-value seafood?

5. On a scale from 1-5, how interested do you think your clients are able or interested in utilizing WHOLE fish? *

Since some of the fish caught locally are small and are typically not further processed, they may be available to food pantries only in whole, unprocessed form (frozen).

- *5. Very willing to use whole fish*
- *4. Somewhat willing to use whole fish*
- *3. Neutral*
- *2. Not very willing to use whole fish*
- *1. Not willing at all to use whole fish*
- *I don't know*
-

Please explain your answer:

6. Do you think that your clients would be interested in attending seafood cooking and nutritional demos, if offered by Food Bank culinary instructors? And how much of a difference do you think this would make in their confidence/interest in preparing seafood? *

7. Do you think that there is a correlation between a client's age and their interest in using local, low-value seafood? What is the age distribution of your pantry's clients like, and how do you think this would affect their interest in low-value seafood?
Please explain:

8. Do you think that there is a correlation between a client's race and their interest in using local seafood? What is the racial distribution of your pantry's clients like, and how do you think this would affect their interest in low-value seafood?

Please explain:

9. Do you think that there is a correlation between a client's sex and their interest in using local seafood? What is the sex distribution of your pantry's clients like, and how do you think this would affect their interest in low-value seafood?

Please explain:

10. How many of your clients are families versus individuals? Do you think that families and individuals are equally likely to be interested in using local, low-value seafood, or is there a difference in the interest that families and individuals may have in using this seafood?

11. How many of your clients are immigrants to the U.S.? What is the breakdown of your clients in terms of countries or regions of origin? *

Do you think that clients from other countries may be more interested in using seafood, less interested, or the same as native-born Americans? *

- *More interested*
- *Less interested*
- *The same*
- *I don't know*

Please explain your answer. Also, does your answer vary depending on which country of origin is considered?

12. If we are able to obtain funding to conduct a pilot program to experiment with getting local, low-value seafood in Rhode Island food pantries, is your pantry interested in participating? *

- *Yes*
- *No*
- *Maybe*

13. Is there anything you'd like to add that would help us understand how to design a seafood pilot program that would benefit your clients?

14. What is the name of your food pantry? *

Please provide your contact information in case we have further questions.
Name, Phone number, E-mail

Appendix C: Fishermen Survey

The purpose of this survey is to evaluate the feasibility of bringing low-valued fish to low-income consumers in Rhode Island. This survey is part of a URI Capstone course in the Environmental and Natural Resources Economics Department. The results of the survey will be posted on Eating with the Ecosystem, however, specific names will remain confidential. We will not share any information provided without additional consent.

How many years have you been fishing?

What are your primary target species?
Please list.

Which of the following gear types do you use to catch fish?

- *Dragging*
- *Gillnet*
- *Fish traps*
- *Rod and reel*
- *Other:*

When you catch each of the following species, what do you do with them?
Check all that apply.

	Throw it back	*Land and sell it*	*I do not ever catch this species*
Scup			
Sea Robin			
Spiny Dogfish			
Skate			
Whiting			
Herring			

For each of the species that you throw back into the water instead of landing, how much on average would the species need to be worth in order to justify landing it? [Skip any species that you do currently land]

Scup:

Sea robin:

Spiny dogfish:

Skate:

Whiting:

Herring:

Do you feel that each of these species has become more abundant, less abundant, or the same since you started fishing?

	More abundant	*The same (no change)*	*Less abundant*
Scup			
Sea Robin			
Spiny Dogfish			
Skate			
Whiting			
Herring			

Comments:

Do you feel that the market demand and ex-vessel price of each of these species has become higher, lower, or the same since you started fishing?

	Higher now	*Has not changed*	*Lower now*
Scup			
Sea Robin			
Spiny Dogfish			
Skate			
Whiting			
Herring			

Comments:

How important do you personally feel it is to enhance the local market for each of these local species?

	Very important	*Somewhat important*	*Neutral*	*Not very important*	*Not important at all*
Scup					
Sea Robin					
Spiny dogfish					
Skate					
Whiting					
Herring					

Comments:

We are researching the possibility of moving local seafood to local food pantries, with a focus on plentiful low-priced species. Do you have any suggestions for us on how to make such a project succeed?