2024

SURVEYING SEAFOOD PREFERENCES AND POTENTIAL NEOPHOBIA OF UNDERUTILIZED SPECIES IN RHODE ISLAND CONSUMERS

Alejandro Rojas
University of Rhode Island, rojasalejandro14@yahoo.com

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BY

ALEJANDRO ROJAS

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE

REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

IN

MARINE AFFAIRS

UNIVERSITY OF RHODE ISLAND

2024

MASTER OF ARTS THESIS

OF

ALEJANDRO ROJAS

APPROVED:

Thesis Committee:

Major Professor Patrick Baur

Tracey Dalton

Hirotsugu Uchida

Brenton DeBoef
DEAN OF THE GRADUATE SCHOOL

UNIVERSITY OF RHODE ISLAND
2024

ABSTRACT

Commercial fish stocks are currently in decline with over eighty seven percent at fully exploited or overexploited levels. The overfishing of economically valuable target species is one major cause of these population declines, which is why there has been significant focus on urging consumers to try more underutilized or unheard-of species. However, the question remains: are consumers willing to try these species? Given potential barriers like food neophobia, which is a biological human avoidance of unknown foods, it is important to find out the current seafood preferences of consumers to influence marketing and legislation. The goals of this study were (i) to survey the current seafood knowledge and preferences of consumers in Rhode Island; (ii) to evaluate consumer willingness to try underutilized species and (iii) assess whether a food neophobia reaction could be occurring with underutilized species. Results of the 226 survey responses included that 55% of consumers ate seafood 1-2 times a week. Respondents indicated they most want seafood that is fresh, tasty, and safe to eat. Generally, most respondents had heard about the local Rhode Island seafood species included in the survey, with only one species being Sea Robin being unfamiliar to more than half of respondents. However, four species were consumed by less than 40% of respondents: Scup, Skate, Dogfish and Sea Robin. In summary, the information gathered from this survey can be used to help inform local legislation in Rhode Island that is encouraging consumers to eat local and diverse.

ACKNOWLEDGMENTS

I first want to sincerely thank my parents from the bottom of my heart for supporting me on my journey in getting this degree. Then, I cannot express enough gratitude to my advisor Patrick Baur for agreeing to join me on this journey. With your guidance and feedback, I was able to produce a study I can be happy with the results of. I would also like to thank my committee members Tracey Dalton and Hiro Uchida for helping me develop this thesis along the way. I am also grateful to the Marine Affairs faculty for imparting their knowledge and wisdom to me in the many classes I took in the past two years. Finally, I just need to say thank you to all the wonderful Marine Affairs friends and peers I met in this short time. My experience here exemplified the motto of the Marine Affairs department. We are all in this together and that really showed as we all helped each other make it to the finish line.

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CHAPTER 1

INTRODUCTION

It is estimated that over eighty-seven percent of the most popular global commercial fish stocks are at fully exploited or overexploited levels (Urquhart et al., 2014). An overexploited or overfished stock is one where the population is so low that it may jeopardize the ability to sustainably harvest it going forward (NOAA Fisheries, 2022). This results from current fishing trends that focus on exploiting singular valuable species which leads to decreasing commercial stocks of these target species and increasing mortality of non-target species due to discarding (Benson & Stephenson, 2018). This discarding is usually made up of economic discards. These species could be legally kept, but are discarded due to unfavorable value, sex, quality, or size in favor of the target species. It is estimated that around forty percent of global seafood catches are discarded and this economic waste contributes heavily to the issue of population declines as well as others like overfishing and food insecurity (NOAA Fisheries, 2022). Climate change is also another notable issue. It is set to disrupt migrations, behaviors, mortality, survival, and recruitment rates of marine species through warming ocean temperatures in the near future. It is very possible that because of these effects, species distribution in areas may significantly change. Species are migrating poleward in search of cooler waters (Punt et al., 2014). This means that historically local species in more northern regions could soon be replaced with more southern species that are unfamiliar to consumers. Due to issues such as these, there

is growing civil society and government interest in increasing utilization of underutilized, unheard of or undervalued marine species. The primary goals are to get consumers used to seeing new species in the market and to give overfished stocks a break (Witkin, 2014). This work relates to the incorporation of an ecosystem approach in fisheries. Currently, management of fisheries is generally based on managing single species at a time without regard for interactions within the ecosystem. An ecosystem approach is one that puts conservation of the ecosystem at the forefront to maintain a proper balance. Balanced harvesting is one such idea. Instead of the traditional practice of fishing for only a few select species and discarding all others, balanced harvesting is about broadening what is actually caught, kept and utilized. Balanced harvesting distributes fishing mortality and exploitation across a variety of species in the ecosystem. The result is a more representative haul of species from the ecosystem being fished. This will lower exploitation of popular targeted species and reduce bycatch mortality (Charles et al., 2016). Balanced harvesting has been realized in the European Union through the implementation of Regulation 1380/2013 or the Landing Obligation as it is known. It requires fishermen to keep anything they harvest that can be legally kept as quota and land it at port, thereby decreasing bycatch and waste (Blanco et al., 2018).

Efforts like this may look good on paper but fall short in actualization. Without proper research on consumer acceptance and preferences, underutilized and unknown fish may still end up as waste if the consumer

rejects them (Blanco et al., 2018). Barriers like availability, price, taste and preparation knowledge exist that may keep consumers from accepting these species. One potentially significant yet understudied barrier to increasing interest in underutilized species is Food Neophobia. This is “the tendency to avoid foods never encountered before” (Dematte et al., 2014). It is an adaptation designed to protect an organism from eating unsafe food. It comes at the cost, however, that possible nutritious food is avoided because it is new (Dematte et al., 2014). Food Neophobia is typically seen in children and can be shaped by genetic or environmental forces. However, the tendency to avoid certain foods can linger to adulthood and beyond if the problem is not dealt with in the right way (Białek-Dratwa et al., 2022). In short, these previously considered “trash fish” face an uphill battle against the preferences of consumers. These species may have similar nutritional contents and could taste just as good as their popular counterparts. However, negative marketing and pricing in comparison to other currently valuable and popular species has caused these species to not be landed as often by fishermen who cannot make a living off the low prices (Botkin-Kowacki, 2018). This has resulted in consumers not knowing about these species or being unwilling to try these new species because they are not plentiful in the market (Silva et al., 2021).

Considering all of this, for underutilized species to be accepted by consumers and make it to the dinner plate, further information is needed to understand the preferences of seafood consumers relating to underutilized species. This has been the focus of studies done here in Rhode Island and

across the world. In general, New England is a good site to assess consumer preferences regarding seafood. New England has a close proximity to the ocean, and a history of overfishing that has led to current movements to increase sustainability and resilience within its fisheries (Witkin, 2014). This study endeavors to continue consumer preference research in Rhode Island through the use of an online survey. The goals of the survey were (i) to survey the current seafood knowledge and preferences of consumers in Rhode Island; (ii) to evaluate consumer willingness to try underutilized species and (iii) assess whether a food neophobia reaction could be occurring with underutilized species. Furthermore, the broad goal of the research was to produce results that could help in achieving a more resilient, sustainable, and diverse fishery in Rhode Island. This thesis proceeds first with an introduction to fisheries in Rhode Island and a discussion of lessons learned from modest successes raising the profile of two traditionally underutilized species in New England. The next sections introduce the local seafood movement which aims to diversify what consumers are eating and a literature review of related consumer seafood preference studies as well as the topic of Food Neophobia. Next, the study methods are reported in detail followed by the results of the survey. The thesis then concludes with a discussion of what these findings mean for the future of underutilized species in Rhode Island.

Rhode Island Fisheries

The start of commercial fishing in Rhode Island dates to over 350 years ago. Even today fisheries play an integral role in Rhode Island's culture and economy with commercial fisheries generating around 100 million dollars every year. Rhode Island boasts 22 fishing ports with over 500 fishermen contributing to this local economy (RIDEM DMF, 2022). Importantly, every year now the Rhode Island Department of Environmental Management's Division of Marine Fisheries puts out an annual report on the state of Rhode Island fisheries. The report is comprised of public information about the number of fishers and boats, what is being caught, how it is being caught, and how much is being caught. From the most recent 2022 data, 97 species were harvested in Rhode Island waters. From that, the top ten species by value included longfin squid, Atlantic Sea scallops, American lobsters, Summer flounder, Quahogs, Jonah crabs, Illex squid, scup, Black sea bass and channeled whelk. These ten species contributed to almost ninety percent of the value of landings in 2022 (RIDEM DMF, 2022).

Popularizing Underutilized Species in New England

The monkfish or goosefish as it is known is a bottom dwelling species found in new England as well as other areas. Its flat tadpole like body and toothy mouth give this species a distinctive appearance (*Monkfish | NOAA Fisheries*, 2024). For decades this species was considered a "trash fish" to be discarded when caught alongside other groundfish. However, in recent years

Monkfish has been dubbed “poor man’s lobster” for its meat that is similar in taste to lobster. The livers are also taken and eaten as a delicacy (Goethel, 2022). Thus, monkfish represent a species that was historically underutilized and has now gained some popularity due to marketing it as a substitute for lobster. It is also branded as a smart seafood choice because it is sustainably managed and harvested in the United States (*Monkfish | NOAA Fisheries*, 2024). In Rhode Island specifically landings of monkfish were stagnant from the 1950’s to the 1990’s. Then, landings peaked and fell, but have remained higher than they previously were (RIDEM DMF, 2022). The positive marketing of monkfish already exists so now it is just about getting more people to try this species. Just do not show them a picture of the fish before they eat it.

Dogfish are another historically discarded species that has made gains in popularity. In the Cape Cod area overfishing and climate change have decreased population numbers of cod its namesake fish (Botkin-Kowacki, 2018). Dogfish, which is a small shark, have been caught in abundance alongside cod. However, dogfish have always been seen as a nuisance bycatch species eating anything in their path and clogging nets. With declining populations of other species, these sharks have gained popularity as a replacement for these other species. Currently, most landings are exported to Europe. Work has been done though locally to encourage more consumption of this species and increase its value. Presently dogfish is worth around twenty five cents for fishers compared to other more popular species worth dollars (Botkin-Kowacki, 2018). One idea to increase its popularity is to rename it to

Cape Shark, referencing it as a local species or Rock Salmon, as the United Kingdom calls it. Either way this species offers a promising alternative to the overfished cod.

These two species provide an example of creative marketing that can help turn wasted “trash fish” into acceptable meal options and contribute to more balanced local harvesting. However, even monkfish and dogfish still lag well behind the most popular seafood species in both demand and price, and there are many other underutilized species found in the local area.

The Local Seafood Movement in Rhode Island

In general, in the United States there has been increasing consumer importance being placed on eating local food to support a stronger food system (Richard & Pivarnik, 2020). Rhode Island offers a great example of a state that is trying to improve the resiliency of its local food system through initiatives created by state, industry and non-governmental entities. With fisheries being one of the oldest industries in the state, Rhode Island is known for its local and fresh seafood (RIDEM DMF, 2022). This has drawn tourists from all over the country and the world who want to take a bite out of what the Ocean State has to offer. Through some of the various initiatives and partnerships by actors within the state, there has been much work done to improve consumer education and awareness of available local and sustainable seafood.

One such entity is the Rhode Island Seafood Marketing Collaborative which is chaired by Rhode Island's Department of Environmental Management. It was started in 2011 with the goal of supporting fishermen and businesses within the state through increasing consumer awareness of local species (*RI Seafood*, 2023). The website offers easy to use tools to connect consumers with information regarding local species. The RI Seafood Finder contains a list of restaurants, seafood markets, farmers markets, grocers, and direct sellers that offer a local selection of species. Users can also see information about these species including a seasonality calendar to let people know when they can look for their favorite species being sold fresh. Landing data from the previous week is also available so consumers can see what is being caught. Additionally, the Rhode Island Seafood Marketing Collaborative offers the FishLine app on phones so customers can buy directly from local commercial fishers. A simple search for a species or by a specific location will yield one of many local fishers ready to share the freshest fish from their boat (*RI Seafood*, 2023).

Another organization making waves in the local seafood movement is the Rhode Island based nonprofit Eating with the Ecosystem. They promote a place-based approach when dealing with seafood to foster a more resilient ecosystem. Included in their ideals are aspects like eating local and eating like a fish. This means urging consumers to choose local when they can and choose an array of species from all levels of the ecosystem including both predators and prey species. Eating with the Ecosystem conducted its own

research to find out what local New England species could be bought in the surrounding marketplaces in a landmark citizen science research project. One aspect of The Eat Like A Fish Project involved eighty-six participants that scoured the corners of New England in search of fifty-two types of local seafood being sold. The goal was to see if the results matched the diversity of seafood species that was actually available to catch locally (Masury, 2019). The answer to that question varied quite a bit. The marketplace was dominated by what was called the “big five”. These five species which included lobster, scallops, clams, cod and haddock were found by participants at establishments between fifty-two and eighty percent of the time. Comparatively thirty-two species were found only around ten percent of the time by participants. However, intriguingly if participants asked ahead of time for a certain fish, the staff were usually able to procure the desired species (Masury, 2019). The nonprofit also hosts events like the Community Seafood Dinner which give participants the opportunity to eat a seafood meal focused on local as well as some underutilized species (Masury, 2024). The 2024 dinner had attendees try underutilized species like slipper limpets, skate and spider crab amongst other local favorites which were all prepared in familiar ways. Slipper limpets, a type of snail, were prepared with lots of garlic and butter. The skate was lightly breaded and fried along with a spider crab cake. Every dish worked. Another problem the organization sought to overcome was the unfamiliarity with cooking these underutilized species. It is one thing to cook these species for guests at events like the Community Seafood dinners,

but to truly involve the public they need to know how to cook these species on their own. People already know how to cook local favorites for the most part, but not species like the sea robin, skate, and slipper limpets. The Simmering the Sea cookbook was created in a joint effort with Johnson and Wales and the University of Rhode Island. It includes recipes for forty underutilized Atlantic species (Masury, 2024). Private initiatives like what was described above may reduce some of the uncertainty in consumers in choosing underutilized species.

Fresh Harvest Kitchen in Westerly Rhode Island is described as an alternative to the usual fish market. It differs in structure by going against current consumer demands and only offering what is seasonal and local. Basically, offering whatever is caught by local fishermen. It is a collaboration between the Southern Rhode Island Conservation District and local fishers. Fresh Harvest Kitchen is a commercial kitchen, processing facility and market all in one. The aim of the project is to keep processing local for fishermen in Westerly and to get more consumers in the community to try a variety of local seafood (Masury, 2022). They have offered tasting events of local seafood like scup, squid and rock crab in order to educate consumers on how to cook local or more underutilized species.

It is apparent from these organizations that work is well underway in Rhode Island in getting consumers to accept new, local species being added to their plate as a route toward a more balanced harvest. However, information about what seafood consumers want and why they eat it could benefit these

organizations and the broader local and sustainable seafood movement. Especially for RI Seafood and Fresh Harvest Kitchen, knowing the right way to brand or market new seafood to consumers is a must for its success. Depending on what the consumer cares about for their seafood makes all the difference in their choice of one species over another. With the right data, marketing can target these aspects to make underutilized species more attractive to the consumer. Then at that point it is just about getting the word out about how delicious these species can be.

CHAPTER 2

REVIEW OF LITERATURE

Over the past decades many studies have sought to figure out the driving forces behind consumer choices regarding seafood. This research has happened across the globe in response to many factors like encouraging diversity in eating habits, climate change, health related studies, sustainability and to better inform state and federal legislation. Barriers also exist like food neophobia that may prevent consumers from consuming seafood. The following studies offer insight into the seafood preferences of consumers as well as potential barriers to consumption that may exist in New England and elsewhere. They serve as the inspiration for the necessary continuance of consumer preference research regarding seafood.

Review of Selected Studies on Seafood Consumption Preferences

In Rhode Island, Richard and Pivarnik (2020) conducted a consumer preference survey to assess purchasing choices, consumer perceptions and understanding of local seafood that Rhode Island consumers held. Their survey instrument was used as the framework of the current survey. A letter survey was mailed to 5,000 randomly selected Rhode Island households and reflected a population of anyone older than 18. To incentivize mailing back the survey twenty winners in a lottery style drawing would receive a $100 gift card. This survey, after the participant answered the question if they ate seafood,

included questions about consumer behavior, purchasing habits, and ideas about local seafood. Four- and five-point Likert scales were used to rate knowledge and importance of topics (Richard & Pivarnik, 2020). Of the 952 respondents 63% ate seafood one or more times a week. Some of the important data collected was that the most frequent places people purchased seafood were firstly the supermarket and then very closely second being restaurants. Respondents generally had low knowledge confidence of issues regarding origin, sustainability, selection, handling, and preparation of seafood (Richard & Pivarnik, 2020). However, more frequent eaters also indicated higher knowledge of handling and preparation. Taste, safety, and quality were found to be important influencers of consumption and purchase. From these results there was an indication that an increased amount of public outreach, future research and information is needed to address certain uncertainties within consumer preferences and preferences of Rhode Island seafood (Richard & Pivarnik, 2020).

Hicks et al. (2008) conducted a nationwide survey of seafood preferences and knowledge in consumers. This study was concerned with assessing the impacts of newer preferences in the marketplace on consumer decisions like sustainability, environmental impacts, and nutrition. The study also focused on potential barriers of seafood consumption in consumers (Hicks et al., 2008). There were some notable results of the 1062 responses to the online survey. When seafood consumers were asked for reasons of decreasing seafood consumption they answered affordability, availability, and

taste changes of a household member as the top reasons. When it came to knowledge, consumers found it difficult to ascertain the freshness of seafood with only 29% of respondents being knowledgeable in the quality of seafood. Also, only 39% felt comfortable preparing seafood. However, quality, handling, and preparation were what influenced purchases. Media, family or friends, and the internet were where consumers currently get information regarding seafood (Hicks et al., 2008). Consumers reported hearing more positive messages than negative messages surrounding seafood. Some of the key takeaways were that knowledge and perceptions of seafood were somewhat low. People hold preferences like quality and knowing how to prepare the seafood high in making decisions at the seafood counter but rank these factors low in knowledge. This indicates that educators could target areas around seafood quality, supply and safety to produce more trust in consumers (Hicks et al., 2008). After reading this study it became clear that an online survey compared to a mailed paper survey might be a better method for the current survey because of its success and the ease of use. This was both in not needing to transcribe data from paper surveys and not needing to mail out surveys.

Getchis et al. (2020) surveyed Connecticut residents for the purpose of collecting data to inform policy makers and seafood industries about seafood consumption, knowledge, behaviors and preferences. Using an online survey developed through Qualtrics, 1,756 adults were recruited from established Qualtrics survey participation panels within Connecticut over eight weeks.

Questions included frequency of consumption, motivation behind consumption, seafood preferences and knowledge of seafood. Ninety-one percent of respondents indicated they consumed seafood with most eating it at least once a month. Freshness, flavor and safety were the top motivators behind seafood purchases and were ranked as extremely important on a scale between not important and extremely important (Getchis et al., 2020). Respondents also indicated that they would be more willing to consume local or more unfamiliar species if recipes or instructions came with the purchase. Confidence in local products was higher than products from foreign countries. Most seafood consumers had no preference when it came to wild caught or farm raised species. The majority also had no preference when it came to choosing local Connecticut seafood or other seafood. The information collected from this study will improve general understandings of consumer preferences and knowledge regarding seafood (Getchis et al., 2020).

Another study in Connecticut sought to try to understand consumer seafood preferences and the effects of ecolabeling of seafood on consumers through a mail survey that garnered 432 responses (Roheim et al., n.d.). In an open response question consumers rated salmon, shrimp, swordfish, lobster and cod as their most consumer species. Eighty five percent of respondents eat seafood at home at least once a month compared to only 37% indicating they eat seafood at a restaurant once a month. Seventy-five percent of respondents get their seafood at the grocery store compared to a fish market. Forty seven percent felt that an ecolabel on seafood indicating a non-

overfished species would be very important to them with 43% indicating somewhat important. Two thirds of respondents also indicated they would try a different species of fish if it had the ecolabel on it. Out of three seafood preference choices quality was the most important. Then it was followed by preference for a certain species and price. Results suggested a preference for certain types of seafood but the potential that ecolabels may influence the choice of different species (Roheim et al., n.d.).

In New Hampshire the potential to create new markets for fish was tested with seafood consumers through surveys and taste tests. Overall, results indicated that the general public was hesitant to try new species they did not know about but were willing to pay more money for other local species they knew. Results also showed a potential for little known species to be rebranded or renamed. Then with more public awareness they may be reconsidered as valuable local species (French et al., 2014)

In the US Virgin Islands, the public acceptance of creating a commercial fishery for the invasive lionfish was tested (Yandle et al., 2022). The most common way to deal with this voracious predator has been campaigns around eating this invader. Both locals and tourists were surveyed and interviewed on their willingness to try this species to make up a representative sample of the stakeholders on the Islands. Local responses indicated that around fifty percent might try it but with tourists over seventy five percent said they might. The general consensus however was that there was hesitation due to hearing that the fish was poisonous. This positive willingness

to try could be boosted with education and awareness work through restaurants and non-governmental organizations (Yandle et al., 2022).

Food Neophobia

Food Neophobia is the “reluctance to try novel or unknown foods” (Dematte et al., 2014). It is a genetic adaptation that protects an organism from eating possible unsafe food but at the cost that nutritious food may be avoided as well. Several studies have found varying results of whether this attribute may be present more in men or women. Food Neophobia reaches its maximum between the ages of two and 6 and may decrease in levels through adulthood. However, it starts to resurface in older people as a response to protect an elderly organism from potential poisoning (Dematte et al., 2014). Given that food neophobia is a relatively new topic, there is a lack of research pertaining to this adaption. Very few studies have sought to see if there may be a connection between food neophobia and consuming unknown or unheard-of seafood in adults.

Taken together the literature represents a solid framework of consumer preference research when it comes to seafood and what it should include. As preferences are not static and change as time goes on this literature supports the need for regular updates. Furthermore, these studies helped form the research questions of this study. As noted, the seafood preferences that impact individual choice are varied and ever changing, but three seem to be consistently ranked highly by consumers: quality, taste, and safety seem to be

what influence consumer choices of seafood the most. Are these three still the most important for seafood consumers, or are there other seafood preferences that should be considered? The concept of food neophobia brings the aspect of familiarity into question. Does familiarity impact consumer choice or willingness to eat different types of seafood? The goal then becomes continuing past research and asking new questions as they arise. This research fills in a gap in the literature by attempting to research a new factor influencing consumer preference and add to the past literature with the most up to date data available.

CHAPTER 3

RESEARCH QUESTIONS

Question 1: What are the current seafood preferences of consumers in Rhode Island and how does this vary demographically?

Question 2: In Rhode Island consumers is willingness to try underutilized seafood species affected by food neophobia and other factors?

METHODOLOGY

Creating the Survey

To answer the research questions this study used an online Qualtrics survey to examine seafood preferences and knowledge in Rhode Island Consumers. An online survey was chosen because of its advantages over other methods like mailed surveys (Hicks et al., 2008). An online survey done through a program like Qualtrics allows the researcher to directly work with data instead of transcribing written results, save time and money, use specific question formats and reach different demographics (Suh, 2013). Some of the types of questions asked were adapted from Richard and Pivarnik's (2020) previous survey done in Rhode Island, as discussed above. One of the goals of this current study was to continue this type of consumer research and yield comparable results to see if certain preferences may have changed in the past five years.

Survey Questions

To survey seafood preferences and knowledge, this online survey consisted of eight questions as well as demographic questions (Appendix 1). The first three questions were about seafood consumption frequency and location. Question four was a 1-5 Likert scale question broken up into multiple smaller questions that asked about important or non-important factors when purchasing seafood. Question five dealt with ascertaining consumer knowledge of fourteen local species. As there are nearly 100 local species landed in the state and it was not feasible to ask survey respondents about every one of these species. A subset of 14 species were chosen to be a representative mix both in terms of in-demand species (including “the big five”) as well as more underutilized species (including dogfish and monkfish) representing a spectrum of species that are landed more and less infrequently. Question six then followed up by collecting consumption data on those local species. Question seven was a 1-4 Likert scale question to test willingness in trying new species consumers may have never heard about. A 1-4 scale was used instead of a standard 1-5 scale to avoid the possibility of respondents putting a 3-score indicating neither an unwillingness nor willingness. An open response question was also included.

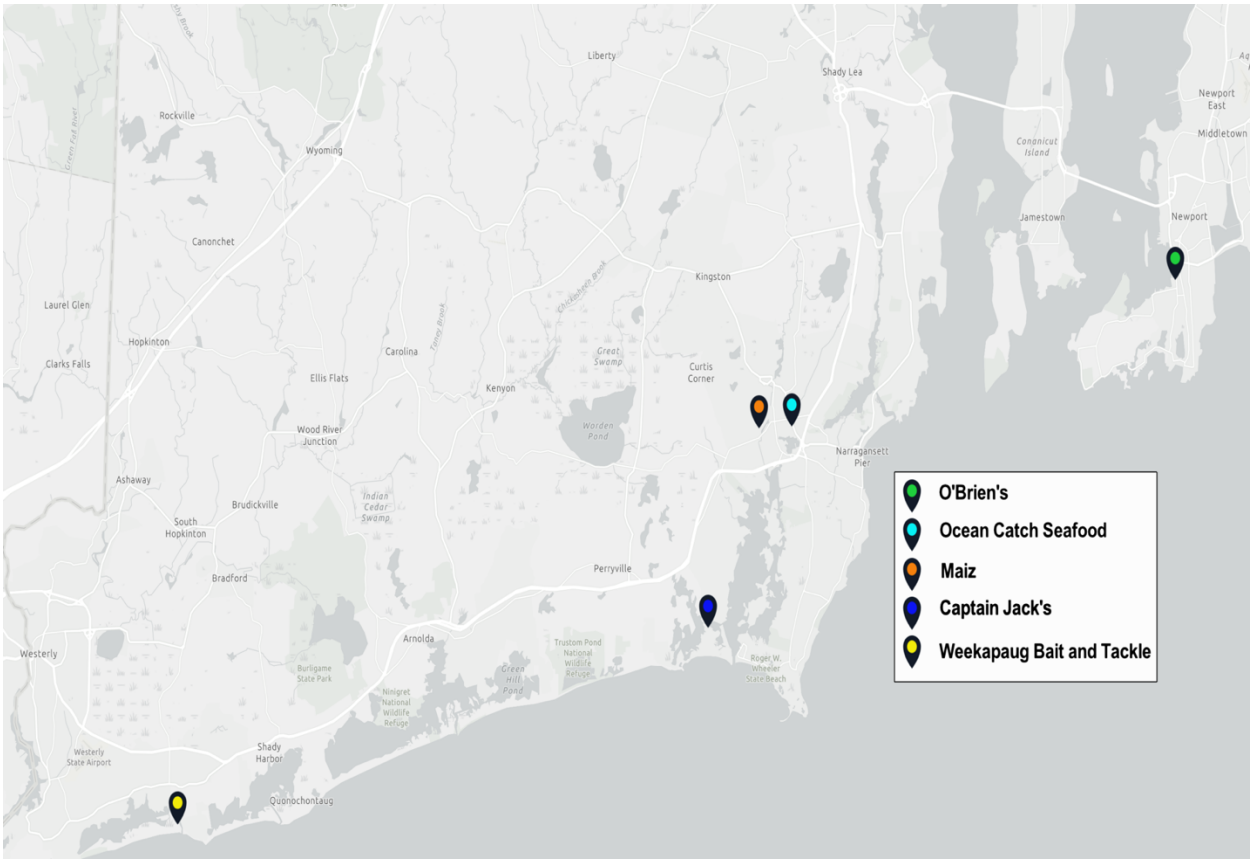
Locations

Unlike past studies that sought a sample of consumers representative of the general population, the present study intentionally sought to oversample seafood consumers using a convenience sampling approach. The rationale was that current seafood consumers are the most likely group from which new demand for underutilized species would arise. In order to reach seafood consumers, locations were chosen in Rhode Island where seafood consumers might frequent as well as locations where general consumers might frequent. Cold calls and in person conversations with managers and owners of locations in Rhode Island were used to gain approval for the distribution of the survey. After many locations declined to be a part of the survey, five locations approved and were chosen. Locations included Ocean Catch Seafood in Wakefield, Captain Jack's in Matunick, O'Briens in Newport, Maiz in Wakefield, and Weekapaug Bait and Tackle in Westerly. See Figure 1 for more information. By surveying at these five locations a convenience sample was collected. In a convenience sample participants are selected for inclusion as they are available (Taherdoost, 2016). In this case it was the five locations that agreed to be a part of the research. Convenience sampling is popular because it is inexpensive and easier than other methods. However, results may be less generalizable and include some bias (Taherdoost, 2016). To overcome this somewhat, demographic results among the respondents would be compared to demographic data from the most recent US Census. This is to

see if the population of Rhode Island matches or does not match the captured demographic.

Figure 1. Map of Southern Rhode Island where responses of surveys were collected.

Method of Surveying



The initial plan was to have the researcher distribute the survey in person, on a tablet, at each location by talking to people as they entered the establishment. Due to the hesitancy exhibited by managers and owners during the cold calls and in person conversations around having someone surveying in front of these establishments, this in person approach had to be abandoned. A more hands off approach using quick response (QR) codes to recruit respondents to self-administer the survey on their own devices

(smartphones) was adopted. The QR-based recruitment method has recently gained in popularity especially in the post COVID era. QR codes do not require any special apps to be downloaded and can be accessed with only a camera on a smartphone or tablet. The use of quick response codes with surveys solves issues relating to lower response rates from links in email, mailed surveys and in person survey hesitancy (Faggiano & Carugo, 2020).

In this study six different QR codes were generated using an online QR code generator and the survey link. The first QR code generated was a test to be used to pilot the survey. The survey was then piloted amongst the University of Rhode Island graduate Marine Affairs cohort and with connections from the Department of Environmental Management Division of Marine Fisheries. After positive feedback from the piloted survey and approval from the University of Rhode Island Institutional Review Board, the other five codes were generated (Appendix 2). Location data was imbedded in each QR code by attaching the name of each location to the end of the survey link used to generate the codes.

QR code cards that contained a shortened name of the survey and a small bit of information about the survey were printed out on paper. Standing plastic placards were purchased and double-sided paper QR code cards were inserted (Appendix 3). Depending on the location of the survey, the methods of distribution differed slightly. A differing amount of QR code placards were distributed to the restaurants based on size of the restaurant with instructions to be put out at tables and bars. Obrien’s and Captain Jack’s received twelve.

Maiz received five. At Ocean Catch Seafood which is a fish market and Weekapaug bait and tackle, two QR code placards were used at the register in conjunction with the QR code cards in a small stack. For convenience, the customers could take the QR code cards with them instead of just scanning the stationary QR code placard. Fifty QR code cards were replenished at these locations every two weeks. This survey method was used at the non-restaurant locations because of the shorter amount of time that customers spend at a fish market or bait shop compared to a restaurant.

In total the survey ran for twelve weeks from July through September of 2023. After the completion of the twelve weeks, the survey was closed to further responses and data was exported from Qualtrics to Excel. The data was cleaned by removing pilot responses and under eighteen age responses from the data set. The data was then moved to SPSS version 29, a statistical program where descriptive statistics like frequency, means, medians, modes, and crosstabs could be run.

CHAPTER 4

FINDINGS

Demographics

Table 1 shows a breakdown of the respondents of the survey. In total 226 valid survey responses were recorded. As no question was mandatory the frequency and percentages for any given question may not add up to the total number of responses. Respondents of the survey were broken down into Rhode Island residents (55%), part time residents (22%) and visitors (18%). Respondent age was representative of the most current 2022 Rhode Island Census data between the ages of 18-44 which made up 31% of participants compared to around 33% from the Census (*Rhode Island Census Bureau*, 2022). The 45-65+ population was overrepresented with 65% compared to around 45% in the state. Gender was mostly female with 59% compared to the 51% from the Census data. Household income was higher than the mean reported household income of $108,823. Thirty-eight percent of respondents recorded making over $150,000, which is a significant difference from the estimated 22% from the Census data. Participants were overwhelmingly white or Caucasian (91%) which was concurrent with white (70.5%) being the most recorded race present in Rhode Island (*Rhode Island Census Bureau*, 2022). Survey responses occurred the most at Ocean Catch Seafood which made up 47% of responses.

Demographics	Frequency	Percent
Resident/Visitor Status		
Full-time resident	129	55
Part-time resident	52	22
Visitor	41	18
Age		
18-24	16	7
25-34	26	11
35-44	30	13
45-54	37	16
55-64	55	24
65+	58	25
Gender		
Female	137	59
Male	80	34
Non-binary/third gender	1	0.4
Prefer not to say	1	0.4
Prefer to self describe	2	1
Household Income		
150,000+	88	38
100,000-149,999	41	18
75,000-99,999	23	10
50,000-74,999	16	7
25,000-49,999	8	3
Less than 25,000	8	3
Prefer not to say	38	16
Race		
White or Caucasian	212	91
Black/African American	4	2
Native American/American Indian/Alaskan	1	0.4
Asian	1	0.4
Hawaiian	2	1
Other	2	1
Prefer not to say	6	3
Latino		
No	214	92

Yes	4	2
Survey Location		
Captain Jacks	40	17
Maiz	36	16
O'Briens	35	16
Ocean Catch Seafood	109	48
Weekapaug Bait and Tackle	6	3

Table 1. Table of responses to the seven demographic questions included in the survey.

Consumer Preferences

One of the main goals of this study was to determine some of the preferences that consumers in Rhode Island have regarding seafood. Four respondents answered that they never eat seafood. Of the 222 (98%) respondents that responded that they did consume seafood, 121 (55%) consumed seafood 1-2 times a week. Fifty-eight (26%) respondents ate seafood a few times a month and 43 (19%) ate seafood more than 3 times a week. Of the 222 respondents that reported eating seafood, 147 (66%) reported eating seafood most frequently at home. Seventy-four (33%) ate seafood at restaurants and one respondent ate seafood at a family or friend's place. The next question asked respondents to drag and drop two responses of where they get their seafood into a box on the screen (Figure 2). Fish markets, restaurants, and grocery stores were the most frequently selected places that respondents reported getting their seafood. Fish markets had the most first choice responses with 111. The most respondents chose grocery stores 77 times and restaurants 70 times as their second choice for seafood.

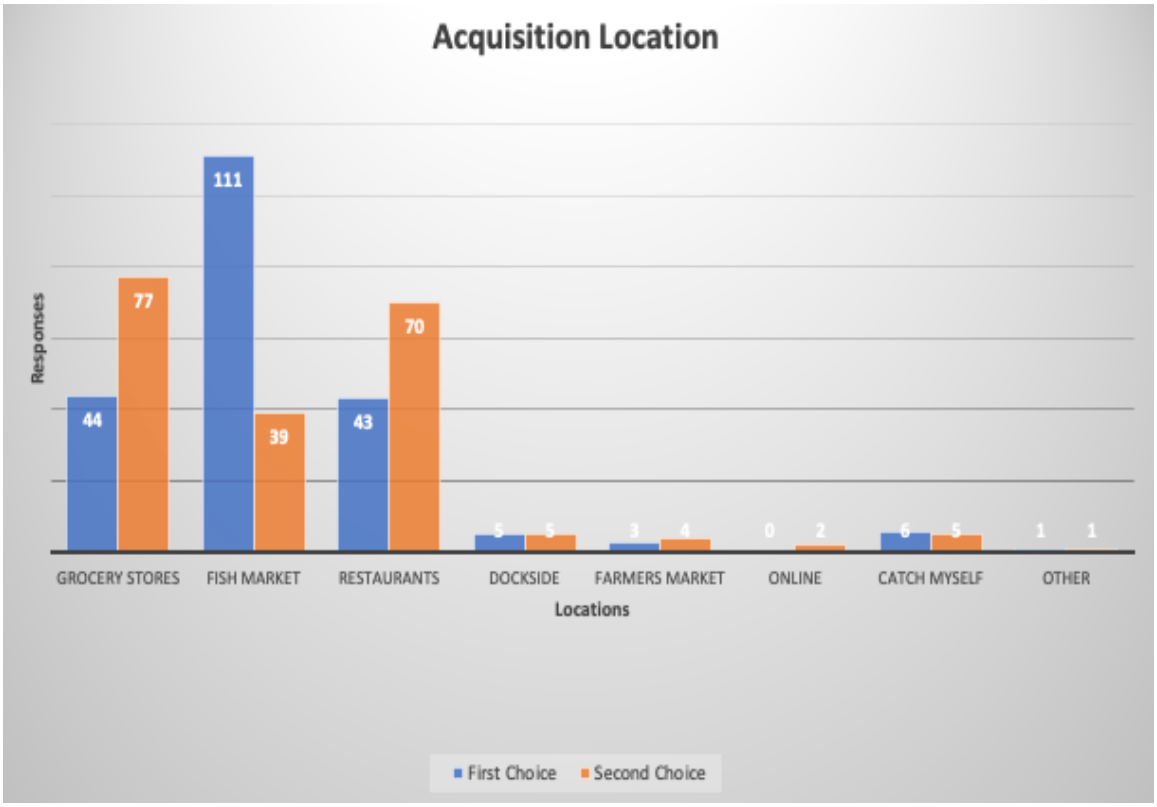


Figure 2. Graph of responses to question four for first choice (Blue) and second choice (Orange) of where consumers get their seafood most often.

Question four was comprised of Likert scales pertaining to seafood preferences at the time of purchase (Figure 3). On the scale of 1 to 5, 1 was a preference that was not at all important and 5 meant very important. Respondents tended to rate the preferences of taste, freshness and safety as most important when deciding what influenced purchase of seafood. To see what scale was most picked, mode was calculated in SPSS for each preference. Price had the most 3 responses with 40% and familiarity with species had the most 4 responses also with 40%. Respondents reported a 5 preference the most with taste (77%), safety (69%) and freshness (85%). The locally caught preference received the most 4 responses with 38%. Sustainability had a tie score between 3 and 4 responses each having 30%. Knowing how to prepare the seafood had a mode of 3 with 29% of responses. Interestingly all purchase preferences had a less than one percent response

rate for the one scale, but some people still did consider certain preferences to be not at all important. The mean scores for all the preferences were also calculated. In descending order they were Freshness 4.75, Taste 4.69, Safety 4.45, Familiarity 3.9, Local 3.79, Sustainability 3.51, Preparation Knowledge 3.49, and Price 3.23.

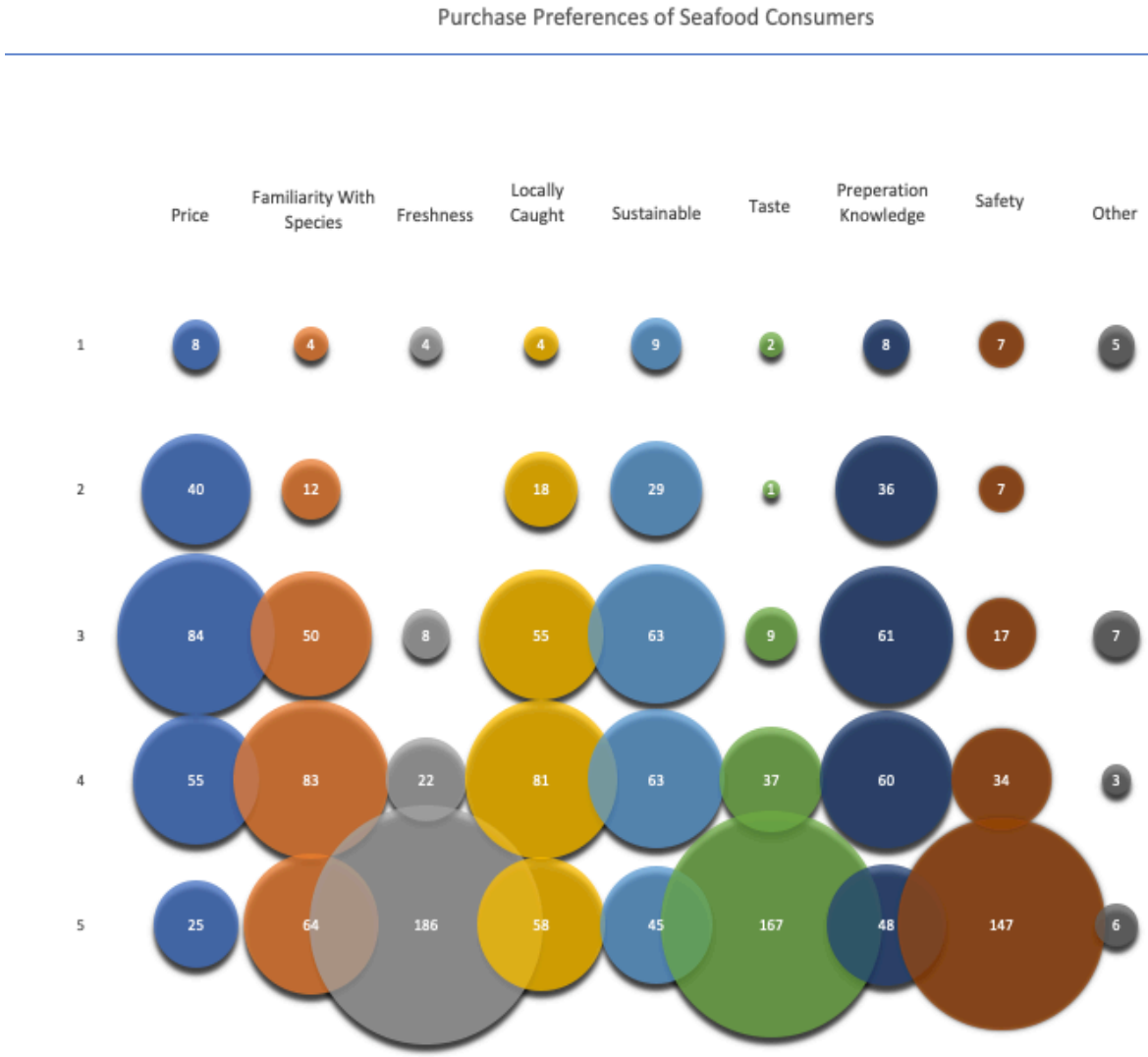


Figure 3. Bubble Chart of a 1 to 5 Likert scale of seafood purchase preferences of Rhode Island consumers. 1 represents a preference that is not important at all and 5 represents a preference that is very important.

There was reason to believe there would be some demographic differences that may affect purchase preferences regarding seafood as well. Household income was one demographic that may produce different results, for example with respect to price. A cross tab was run between income and the stated preferences (Table 2). Income brackets were combined into an over $100,000 category and an under $99,999 category and prefer not to say responses were left out. Over 50% of responses were from the higher income of over $100,000. As such, a majority of preference responses were clustered in this income bracket leading to indeterminable results of differences between preferences.

Preference/Income Cross Tab	>$100,000	<$99,999
Price	122	53
Familiarity	125	52
Freshness	129	53
Local	128	50
Sustainability	124	48
Taste	128	52
Preperation Knowledge	126	50
Safety	125	51

Table 2. Cross tab of income brackets of >$100,000 and <$99,999 with purchase preferences of seafood consumers.

The demographic of age was also cross tabulated with seafood preferences due to possible changing preferences from age (Table 3). Two categories were created from the original six age brackets with respondents aged 18-44 and then 45-65+. With 65% of respondents in the 45-65+ category, preferences were grouped in this bracket because of the majority of responses. As such the results were ambiguous.

Preference/Age Cross Tab	18-44	45-65+
Price	70	142
Familiarity	70	143
Freshness	70	150
Local	69	147
Sustainability	69	140
Taste	70	146
Preparation Knowledge	69	144
Safety	68	144

Table 3. Cross tab of age brackets of 18-44 and 45-65+ with purchase preferences of seafood consumers.

Survey location might have also influenced preferences due to different preferences being more applicable at the location. A cross tab was run between the three restaurants combined and the fish market with all the purchase preferences (Table 4). These two categories each held about 50% of responses. Preferences were spread almost evenly between the restaurants and the fish market indicating a null result of location differences.

Preference/ Survey Location Cross Tab	Restaurants	Fish Market
Price	102	104
Familiarity	103	104
Freshness	105	109
Local	102	108
Sustainability	99	104
Taste	103	107
Preparation Knowledge	101	106
Safety	100	106

Table 4. Cross tab of survey locations between restaurants and the fish market with purchase preferences of seafood consumers.

Question seven asked consumers if they were willing to try a new species they may have never heard of before with a Likert scale of one to four. One represented total unwillingness, two was kind of unwilling, three was kind of willing and four represented total willingness to try. Out of the 222 responses to this question only seven or 3% responded with a total unwillingness score and twenty-eight or 12% of respondents chose a two score. The three-score had sixty-seven (29%) responses and the four-score had 120 (52%) responses. A crosstab was also run between responses of this question and the familiarity with a species preference. If consumers stated that familiarity with a species was a very important factor when purchasing seafood, one interpretation could be that they are somewhat unwilling or hesitant to try those new species. This could result in responses clustered toward an unwillingness to try underutilized species in question seven. The actual results were contrary to this expectation: people who said they would need to be familiar with a species to buy it were counterintuitively more likely to indicate a strong willingness to try new species (Figure 4).

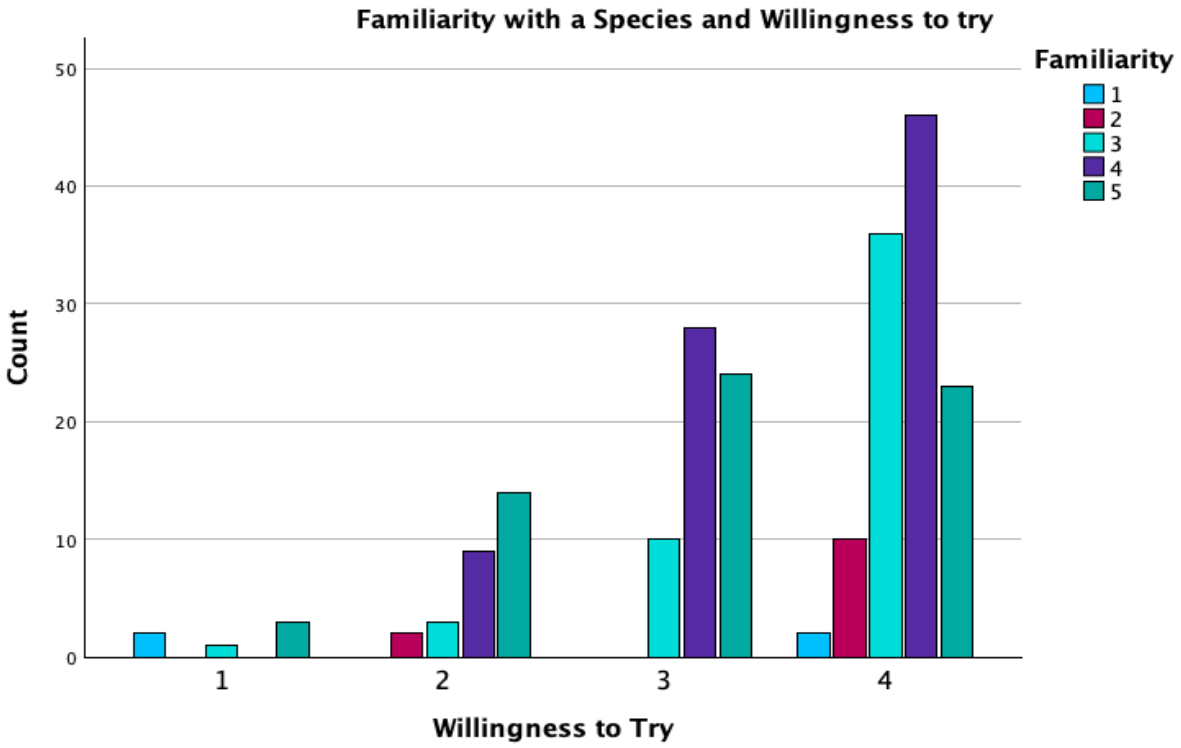


Figure 4. Cross tabulated chart of Question 7 and Familiarity with Species preference from Question 4. Likert Scale of Question 7 is 1-4 with 1 representing an unwillingness to try underutilized species and 4 representing a willingness. Likert Scale of question 4 is 1-5 with 1 representing an unimportant preference and 5 representing a very important preference.

With regards to demographics influencing willingness to try, it was found in a previous study to determine how willing people are to try lionfish that there was a difference between residents and tourists in the Virgin Islands (Yandle et al., 2022). A cross tab was run for the results of residency status and willingness to try (Table 5). Results of this comparison do not reveal a clear difference in willingness to try between residents and visitors in this sample due to an abundance of resident responses.

Willingness to try/ Residency Cross Tab	Full time resident	Part time resident	Visitor
1	2	4	1
2	16	3	9
3	39	16	12
4	72	29	19
Total	129	52	41

Table 5. Cross Tab of Willingness to try a species with a Likert scale of 1 representing total unwillingness and 4 representing total willingness with Residency.

Knowledge and Consumption of Local Species

Questions 5 and 6 asked respondents to indicate the local species they have heard of before this survey and then of those species, which they have eaten (Figure 5). For the heard of species question, participants were very familiar with seven of the fourteen species as these appeared in over 90% of responses. Those species included Scallops (98%), Cod (98%), Clams/Quahogs (97%), Lobster (97%), Haddock (95%), Summer Flounder/Fluke (93%), and Monkfish (91%). Sea Robin was the only species that participants seemed unfamiliar with as it appeared in less than 50% of responses with only 44%. When question six asked about consumption of species, consumers tended to eat four species as those appeared in over 90% of responses. Those species included Lobster (98%), Clams/Quahogs (97%), Scallops (96%), and Cod (96%). In contrast, four species were found to be eaten less than forty percent of the time. Those species that participants tended not to eat included Scup/Porgy (39%), Skate (37%), Dogfish/Cape Shark (13%), and Sea Robin (12%). Mentioned before was the idea of the “big five” species that include Lobster, scallops, Clams, Cod and Haddock that were found in a majority of fish markets in a study done by Eating with the

Ecosystem. All five of the “big five” appeared in 80% of responses to having eaten these species. Twelve percent of responses had four of the five species and the remaining eight percent contained from three to zero of the big five species.

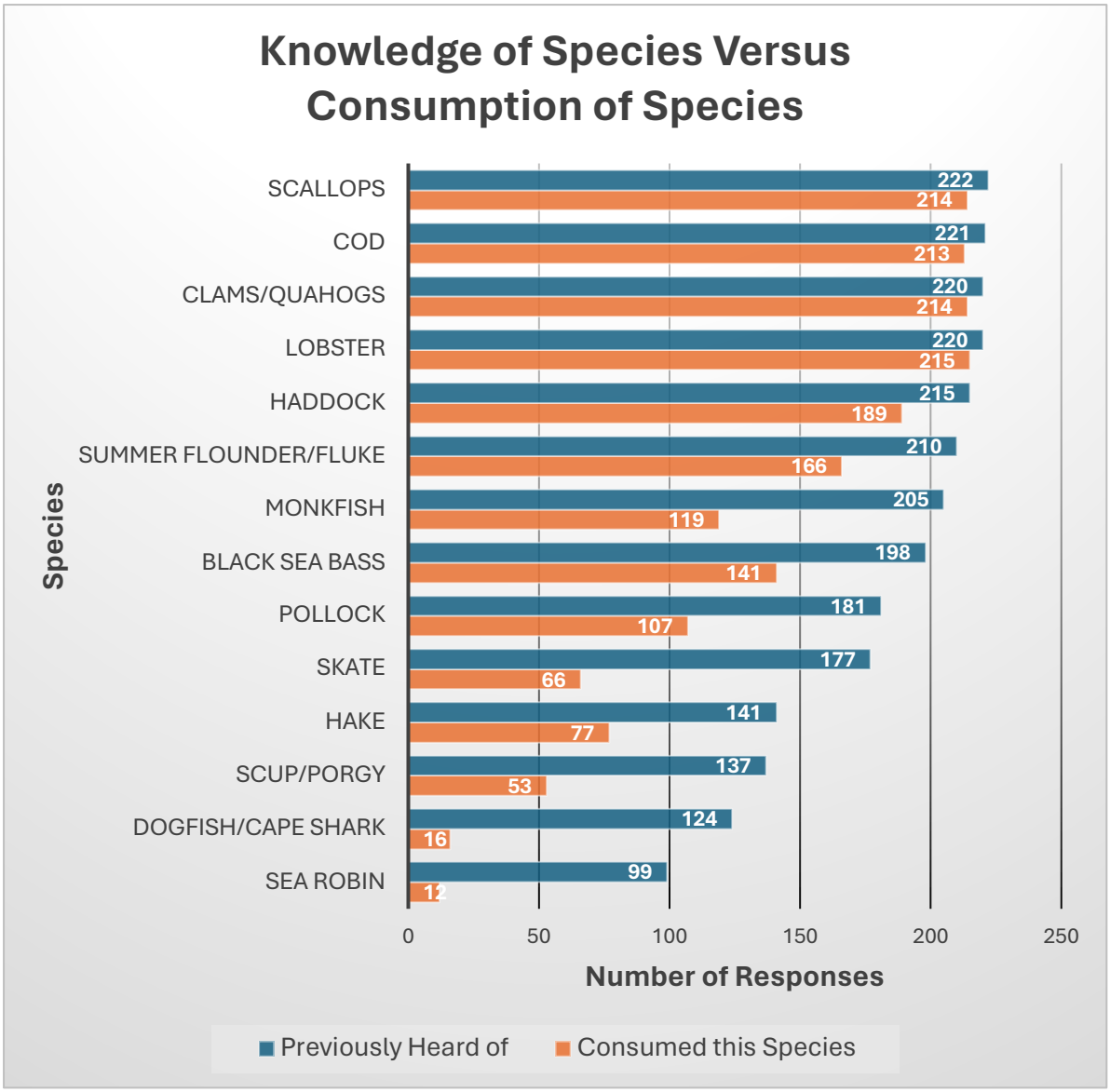


Figure 5. Graph of number of respondents that have heard of a species (Blue) and eaten that species (Orange) in descending order of heard of species.

CHAPTER 5

DISCUSSION

Consumer Seafood Preferences

One of the goals of this study was to produce results that could be comparable to previous studies done in Rhode Island as well as the New England area. The first and foremost research question surrounded finding out broadly the seafood preferences of consumers. Results of this included that Rhode Island consumers are eating seafood frequently. Nineteen percent are eating over the USDA two times a week recommendation for seafood consumption with another possible 55% who answered 1-2 times a week. There were similar findings from Richard and Pivarnik (2020) who reported that fish markets, grocery stores and restaurants were the places people most often get their seafood. These responses agree with the findings from the previous question that people eat seafood most often at home. Consumers most of the time are actively purchasing seafood to cook at home instead of eating it out at restaurants. This could mean that any marketing or information regarding new species should be presented where consumers are buying their seafood. It was found previously that consumers most often get information about seafood at the point of purchase (Richard & Pivarnik, 2020).

When it comes to what is driving consumer purchases of seafood, it would seem things have not changed much in the last five years. Findings were concurrent with results from Richard and Pivarnik (2020) in Rhode Island and Gretchis et al. (2020) in Connecticut. Freshness, taste and safety were

the most important factors influencing consumer purchases. However, even though consumers rate these aspects highly, it has been found that they are bad at judging these qualities during purchase (Richard & Pivarnik, 2020). More research into evaluating consumer's knowledge of the aspects they deem important is necessary. Also as mentioned all preferences had a less than one percent score for the one scale. This could mean generally consumers take all factors into account, even if not equally as important. The information of what aspects of seafood most influence or do not influence purchase can be used by organizations and legislation when marketing species to consumers. Consumers want seafood that is fresh, tasty, and safe. This suggests that when marketing underutilized species, sustainable or local messages may have less impact in swaying the consumer.

This data can also show where more work needs to happen. The local and sustainable preferences were not clustered around one number and were instead more spread out from the 2-5 scale suggesting a more ambivalent attitude toward these aspects among seafood consumers. This spread could mean that marketing of these types of species is inadequate or needs work. Consumers could also just care more about what they perceive to be tasty, fresh and safe than what is local or better for the environment. It is also important to note that this list of preferences is not exhaustive. The free response other preference in this question allowed a participant to write in another preference they felt was missing from the list. Examples included accessibility, health or nutrition, and wild caught or farm raised. These

preferences were not tested for and as such could have a greater impact than other preferences tested here.

When it comes to being aware of local species, the average consumer in this study seems to know not just about the more popular species, but also some of the underutilized species. The “big five”, which were mentioned in the Eat Like a Fish Study were heard of most of the time. Yet, underutilized species like Hake, Scup/Porgy, Dogfish/Cape Shark, and Sea Robin are where knowledge seems to start decreasing. This could be due to accessibility in the market. From 2022 data, Sea robins were only caught and kept by eighteen fishermen out of the over 500 in the fleet (RIDEM DMF, 2022). Dogfish had similar numbers. That combined with the fact that most dogfish is exported to Europe, means it is not appearing in the local markets (Wiersma & Carroll, 2018). Red and Silver Hake were only harvested by around 80 fishermen each (RIDEM DMF, 2022). If it is not being caught, then it is not making it into the fish markets and grocery stores. This can lead to consumers not seeing or hearing about it.

This trend is even further substantiated when it comes to what consumers are eating. More known species are being eaten more frequently, while others are falling behind disproportionately in consumption rates, at a higher rate than expected if familiarity alone were the determining factor. This suggests that other factors are influencing consumption such as accessibility. If consumers cannot access these species at restaurants or markets, then marketing and legislation efforts focused could on making species like Skate,

Hake, Scup/porgy, Dogfish/Cape Shark and Sea Robin more appealing will not lead to increased consumption. Future research should explore more deeply why these species are eaten less or why consumers have not eaten a certain species. Nonetheless, efforts on rebranding and marketing species like the dogfish in Cape Cod are already underway with some positive feedback from consumers with the species taking on the local name (Botkin-Kowacki, 2018). In the open response section three responses suggested that comparing the textures and flavors to already known species might overcome hesitancy. Indeed, this has been a successful strategy with the monkfish as discussed above. This approach might be able to be used in trying to overcome any Food Neophobic reactions as well.

Knowing how to prepare a species and being familiar with a species were clustered around 3 and 4 responses respectively indicating a more important preference. Open responses also suggested that if consumers did not have to cook it, they would be more willing to try it. These findings suggest that even if consumers have access to some of these species, they may still avoid them because of a lack of knowledge either in the species as a whole or how to cook it. One answer to this dilemma from this data and comments would be to have recipes and information available at the point of purchase. This might be able to improve consumption of these species. From this data there are already a good number of consumers that eat some or most of their seafood at restaurants. Future research could test consumer receptiveness to

underutilized species prepared well by partnering with local restaurants to conduct taste tests or sampling events.

Food Neophobia

In regard to the second research question of food neophobia, the familiarity with species preference could be used as a possible indicator of neophobia. The preference is clustered within the three to five scale which implies that many consumers want to know about the seafood before they buy it. Question eight specifically tried to answer the second research question regarding willingness to try new species. When consumers were asked if they were willing to try underutilized or unheard-of species there was a general consensus of willingness. However, from the results of the cross tab between willingness to try and the importance of familiarity with a species in making a consumption decision, this may not represent the whole picture. On one side this maybe could represent some positivity among consumers for underutilized species. This means even people who depend on familiarity in their consumption habits might still be willing to try a new species. It could also mean that asking consumers about willingness to try a hypothetical species leads them to overestimate their actual willingness. In this situation there is no reference point, meaning that if they were asked how willing or unwilling to try a species that is right in front of them, the answer may be different. This question could be improved in future research by conducting taste tests in the field for example through asking the question and then offering a sample for

consumers to try. This approach would allow for the assessment of the validity of their response.

So is Food Neophobia a problem and how can it be overcome? It is known that food neophobia is something that starts in children and can still present itself in adulthood with extreme pickiness or avoidance of certain unknown foods (Białek-Dratwa et al., 2022). Considering this there seems to be only two ways to deal with this adaptation. In children Food Neophobia can pass as long as the rejection of unknown foods is not reinforced. Without education and methods like repeat exposure to new foods in a guilt free manner, then rejection or pickiness may linger in adulthood (Białek-Dratwa et al., 2022). In adults with Food Neophobia there is not much that can be done. However, food neophobia is not something that is extremely common in adults, but its implications may help not just those affected. Increasing education and information available to adults is really the only way besides professional help (Białek-Dratwa et al., 2022). From the open response section and the results of the familiarity preference, increasing the amount of information available to consumers about species may increase consumption and lower hesitancy. With more information to work with, especially if the information compares an underutilized species to a known species, consumers may be able to make a choice that concerns preferences they deem important like taste or safety.

To the question of whether food neophobia is a major influence there needs to be more research on this topic. There is no way of knowing whether

food neophobia is occurring without asking the participant specifically. People could be hesitant to try species for various reasons which were addressed in this study. Future research may yield the answer to this question. Just from this study some people are willing, and some people are not willing to try new species. This is not a surprise as most preferences also varied between consumers.

Limitations

Although this study yielded promising results pertinent to the goal of finding out consumer seafood preferences, it did have some limitations that should be mentioned. As this was a master's thesis based on a two-year timeline, the data collection happened within the span of a few short months. As such the sample of Rhode Island collected represented somewhat of a convenience sample of what could be collected within this timeframe both in location and respondents. Considering this, the demographic results were compared with Rhode Island Census data and the sample was similar to the population of Rhode Island, though did overrepresent higher income and age in consumers. The five locations chosen are spread apart, but they still represent a clustered sample concentrated in the southern half of the state. There is also no guarantee that selection bias did not occur in the sample from the type of people who are more willing to take a survey. As such there is no way to assure that the sample is representative of the general population. Future studies should focus on finding differing locations that are more

geographically distributed throughout Rhode Island to reach consumers in different areas and improve spatial representation.

Research Question one aimed to compare seafood preference data with demographics data. The hope was that this information could be used to show the preferences of different types of consumers who could plausibly be differently influenced by various factors. Such findings would help local seafood initiative target efforts to improve knowledge and consumption rates at the consumers most likely to respond. Unfortunately, give the sample size and relative homogeneity of demographics, the sample was not varied enough to produce a strong signal of different preferences among different demographics. However, it needs to be said that when considering these demographics, certain questions could be interpreted differently. For example, the price preference of question 4 could be potentially skewed in this sample. There is a disproportionate number of respondents with incomes over $150,000, who may be wealthy enough to where price is not a huge consideration. Yet, price could be an important preference for lower income consumers even if it was not among the higher income respondents of this survey.

The average respondent of this survey was a white upper middle class to upper class woman considering the results of the demographics. Even though the demographics were not far from the Census data this still does not capture all of the diversity present within Rhode Island that could have differing thoughts and preferences. Particularly this includes consumers of

lower income, those further from the coastline and consumers of color. Future research should endeavor to capture the voices of the underrepresented races within this sample to produce a more representative sample of the population. This could mean sampling in different areas of Rhode Island as well as broadening the diversity of types of establishments. Only one bait shop was used in this study but that could be a place to start as well as different restaurants ranging in price and cuisine.

CHAPTER 6

CONCLUSION

The goals of this study were (i) to survey the current seafood knowledge and preferences of consumers in Rhode Island; (ii) to evaluate consumer willingness to try underutilized species and (iii) assess whether a food neophobia reaction could be occurring with underutilized species. As far as achieving these goals and answering the research questions, this study achieved these aims with some caveats. First, it is important to note that the results of this study represent only a snapshot of current seafood preferences at this point in time. The problems that fisheries and current seafood trends face are numerous and complex. This study arises from only a single possible angle that consumers can play an important role in addressing some of these problems. Consumer preferences are varied and drive what we eat and why we eat. Those preferences can be shifted to support balanced harvesting, which could potentially help stave off the effects of overfishing or make fisheries more resilient to climate change. It is very possible that the local species listed in this study may no longer inhabit Rhode Island waters as they go more north and soon could be replaced with more southern species which consumers are unfamiliar of. As such, consumer preferences of seafood need to be flexible and adaptable to changing times. That is why research like what was done in this study is needed. It needs to be known if consumers are willing or unwilling to try species they have never heard of before. To do this it is necessary to find out the reasons behind consumption preferences of seafood to decrease overfishing of current target species and prepare for this

possible future. Which is why the data found in this study and others can be used as a starting point to inform policymakers and advocacy organizations.

Just from the responses collected from this survey it is easy to see what local species people are eating and which ones need a boost if balanced harvesting is to be achieved. Information and marketing efforts can then be focused on less eaten but abundant species like Scup, Skate, Dogfish, and Sea Robin. It also means having information available in a timely manner for new species that could be increasing in abundance here due to climate change. Some of the reasons behind these preferences were also investigated which can provide the proper channels with a baseline of where to focus marketing and information campaigns. People want seafood that is fresh, tasty and safe so marketing strategies that target these preferences may do better than other preferences. Considering all this, it can be said that Rhode Island is already off to a great start with its state sponsored, nonprofit and local organizations doing this kind of work already. There is variety in Rhode island waters with around 100 different species being landed (RIDEM DMF, 2022). For various reasons though, a significant portion of these species are not making it to the consumer. Even so, underutilized species are being used more in New England and elsewhere as organizations, chefs and innovators are taking once trash fish and turning them into culinary treasure. The future of seafood does not look so bleak when all this is considered. If consumers can be convinced to be a little more open to trying new species through taste tests

and other future work, then it may be possible to achieve a more resilient, sustainable, and diverse fishery in Rhode Island.

APPENDICES

Appendix 1. Qualtrics Seafood Preferences Survey

Seafood Preferences

Start of Block: Default Question Block

You are being asked to participate in a research survey on consumer seafood preferences. Please read the following before agreeing to be in the study. The survey will take approximately 5-10 minutes and there are no known risks, benefits, or compensation. Responses are anonymous and may be used in a Master's Thesis.

You may refuse to take part in the survey and can withdraw completely at any time. If you have questions about the study feel free to contact Dr. Patrick Baur from the Marine Affairs Department at the University of Rhode Island at pbaur@uri.edu. You may also contact the URI Institutional Review Board at researchintegrity@etal.uri.edu about your rights as a research participant.

By clicking below to be taken to the survey, you indicate that you have read and understood the above, you are over the age of 18, and you volunteer to participate in this study.

- ○ I agree (1)
- ○ I do not agree (2)

Skip To: End of Survey If You are being asked to participate in a research survey on consumer sea-food preferences. Please r... = I do not agree

Page Break

Q1 How often do you eat seafood?

- ○ 1-2 times a week (1)
- ○ More than 3 times a week (2)
- ○ A few times a month (3)
- ○ Never (4)

Skip To: End of Survey If How often do you eat seafood? = Never

Page Break

Q2 Where do you most often consume seafood?

- ○ At home (1)
- ○ Restaurant (2)
- ○ When visiting friends or family (3)
- ○ Fast food establishment (4)
- ○ Other (5)

Q3 Where do you typically get seafood?
Tap and Drag your top two choices into the box

Top Two Choices

_____ Grocery Stores (1)

_____ Seafood Shop/Fish Market (2)

_____ Directly from Fisher/ dock-side (3)

_____ Farmer's Markets (4)

_____ Restaurants (5)

_____ Online Retailers (6)

_____ Catch fish myself (7)

_____ Other (8)

Q4 On a scale of 1 to 5, where 1 is not at all important and 5 is very important, how important are each of the following reasons when you are deciding what seafood to get?

Q5 Which of these species have you heard of before now? (Select all that apply)

- [ ] Black Sea Bass (1)
- [ ] Summer Flounder/Fluke (2)
- [ ] Scup/Porgy (3)
- [ ] Dogfish/Cape Shark (4)
- [ ] Sea Robin (5)
- [ ] Skate (6)
- [ ] Cod (7)
- [ ] Haddock (8)
- [ ] Scallops (9)
- [ ] Clams/ Quahogs (10)
- [ ] Lobster (11)
- [ ] Pollock (12)
- [ ] Monkfish (13)
- [ ] Hake (14)

Carry Forward Selected Choices from "Which of these species have you heard of before now? (Select all that apply)"

Q6 Of the species that you previously selected that you have heard of which have you eaten before? (select all that apply)

- [ ] Black Sea Bass (1)
- [ ] Summer Flounder/Fluke (2)
- [ ] Scup/Porgy (3)
- [ ] Dogfish/Cape Shark (4)
- [ ] Sea Robin (5)
- [ ] Skate (6)
- [ ] Cod (7)
- [ ] Haddock (8)
- [ ] Scallops (9)
- [ ] Clams/ Quahogs (10)
- [ ] Lobster (11)
- [ ] Pollock (12)
- [ ] Monkfish (13)
- [ ] Hake (14)

Q7 How willing are you try seafood that you have never had before?
(1 being not very likely and 4 being very likely)

	1 2 3 4
Willingness to try ()	

Q8 Feel free to add any comments

_____

Page Break

Q9 Are you a resident of Rhode Island or a visitor?

- ○ Full-time resident (1)
- ○ Part-time resident (2)
- ○ Visitor (3)

Q10 How old are you?

- ○ Under 18 (1)
- ○ 18-24 years old (2)
- ○ 25-34 years old (3)
- ○ 35-44 years old (4)
- ○ 45-54 years old (5)
- ○ 55-64 years old (6)
- ○ 65+ years old (7)

Q11 How do you describe yourself?

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer to self-describe (4) _____
- ○ Prefer not to say (5)

Q12 What was your total household income before taxes during the past 12 months?

- ○ Less than $25,000 (1)
- ○ $25,000-$49,999 (2)
- ○ $50,000-$74,999 (3)
- ○ $75,000-$99,999 (4)
- ○ $100,000-$149,999 (5)
- ○ $150,000 or more (6)
- ○ Prefer not to say (7)

Q13 Choose one or more races that you consider yourself to be

- [ ] White or Caucasian (1)
- [ ] Black or African American (2)
- [ ] American Indian/Native American or Alaska Native (3)
- [ ] Asian (4)
- [ ] Native Hawaiian or Other Pacific Islander (5)
- [ ] Other (6)
- [ ] Prefer not to say (7)

Q14 Are you of Spanish, Hispanic, or Latino origin?

- ○ Yes (1)
- ○ No (2)

End of Block: Default Question Block

Appendix 2. Survey QR Code Card

THE
UNIVERSITY
OF RHODE ISLAND

Consumer Seafood Preferences Study

Do you love eating seafood in Rhode Island? Scan this QR code and take this quick 5 minute survey and tell us about your own seafood preferences!

This research has been approved by the University of Rhode Island Institutional Review Board.

Questions? Contact Dr. Patrick Baur at pbaur@uri.edu

Appendix 3. Photo of Standing QR Code Placard

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