

Serving Fish in School Meals: Perceptions of School Nutrition Professionals in Alaska

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ABSTRACT

Purpose/Objectives

Fish and other seafood high in omega-3 fats are important components of a healthy diet. The purpose of this study was to explore perceptions regarding serving fish in school meals among nutrition professionals in Alaska.

Methods

Interviews with 22 school nutrition professionals in Alaska were conducted to investigate the benefits, facilitators, and challenges of serving fish in school meals. Data were analyzed using thematic analysis.

Results

Six themes emerged from the data. Benefits included enhanced quality and variety of protein items in school meals and increased alignment of school meals with student foodways. Facilitators included grant funding, fish donations, and relatively low labor costs. Challenges were short-term and included identifying suppliers, ordering correct quantities, and identifying recipes.

Applications to Child Nutrition Professionals

Serving fish in school meals may help students meet their dietary recommendation for seafood. Funding, technical assistance and resources (e.g. recipes) may help to facilitate such efforts.

Keywords: National School Lunch Program; child nutrition; fish intake; Dietary Guidelines for Americans; Alaska

INTRODUCTION

Fish is an important part of a healthy diet and, as a major source of omega-3 fats, fish contributes to the prevention of heart disease (Mozaffarian & Rimm, 2006). The health benefits of fish and other seafood high in omega-3 fats are reflected in the 2010 Dietary Guidelines for Americans, which recommend that all individuals eat two 4-ounce servings of seafood twice a week (U.S. Department of Agriculture & U.S. Department of Health and Human Services, 2010). Yet fish is not a habitually consumed food in the United States, and the majority of Americans do not meet the recommendation for fish intake (Papanikolaou, Brooks, Reider, & Fulgoni, 2014). Fish intake is particularly low among adolescent girls, which likely reflects well documented negative attitudes toward fish among children (Tran, Barraji, Bi, Schuda, & Moya, 2012). In addition to personal food preferences, low fish consumption among children may be due to several factors including negative perceptions about smell and appearance and fear of finding bones in fish (Leek & Maddock, 2000; Prell, Berg, & Jonsson, 2002). The safety of fish consumption depends on factors such as the species, where it was caught, what it ate, and its

lifespan. The Food and Drug Administration and the Environmental Protection Agency recommend that women who are pregnant or may be pregnant, nursing mothers, and young children avoid eating four fish species known to be high in mercury: shark, swordfish, tilefish, and king mackerel (U.S. Food and Drug Administration & U.S. Environmental Protection Agency, 2014). For the rest of the population, scientific evidence supports the consumption of a variety of fish and other seafood twice a week (U.S. Department of Agriculture & U.S. Department of Health and Human Services, 2010). School meal programs are one way to promote fish consumption as part of a healthy diet. Building on the success of farm-to-school (FTS) efforts designed to simultaneously promote healthy eating habits and contribute to vibrant and resilient food systems (Joshi, Azuma, & Feenstra, 2008), a handful of schools and school districts located in areas where sustainably harvested fish is abundantly available are serving locally caught fish in their cafeterias (Gagnon, 2014; Massachusetts Farm to School Project, 2014; Ritchie, n.d.). According to the first Farm to School Census conducted by the U.S. Department of Agriculture, fruits and vegetables make up the majority of local food purchased by U.S. public school districts (U.S. Department of Agriculture, n.d.). However, the number of school nutrition professionals who are interested in or are already incorporating locally sourced center of the plate protein items such as poultry and seafood, is increasing (U.S. Department of Agriculture, n.d.). In Massachusetts, school nutrition professionals serve versatile and affordable white fishes such as pollock, ocean perch, and hake in school meals (Massachusetts Farm to School Project, April 2014) and in Oregon, school districts have added Oregon Pacific pink shrimp, rockfish, and sole (Ritchie, n.d.).

In fiscal year 2013, the state of Alaska funded Nutritional Alaskan Foods in Schools (NAFS), a pilot program to encourage Alaskan school districts to purchase Alaska grown, caught, and harvested foods, including fish (State of Alaska, n.d.). The NAFS pilot program builds upon a 2010 Alaska law (State of Alaska, 2010) to promote local agriculture in public schools and extends the efforts of several institutions, including the Department of Education and Early Development Child Nutrition Programs and the Alaska Department of Natural Resources, to establish FTS programs through training and technical assistance. In addition to supporting ongoing efforts to connect students, teachers, and school foodservice with Alaska agriculture, the NAFS pilot program provided school districts with funding to better align their menus with the U.S. Department of Agriculture meal pattern requirements (based on the 2010 Dietary Guidelines for Americans), which encourages schools to offer a variety of protein foods, including seafood. The purpose of this exploratory study was to investigate the benefits, facilitators, and challenges of serving fish in school meals from the perspective of school nutrition professionals who purchased fish through the NAFS pilot program. The perspectives of school nutrition professionals are critical for understanding the feasibility of serving fish in school meals.

METHODOLOGY

Interview Guide

A semi-structured interview guide based on previous FTS studies that examined perspectives of school nutrition professionals (Izumi, Alaimo, & Hamm, 2010) was developed. The interview guide included main questions and probes to query the benefits of and challenges and facilitators

to serving fish in school meal programs. Table 1 provides examples of interview questions related to this manuscript.

Table 1. Selected Sample of Questions and Probes for Interviews with School Nutrition Professionals

Questions	Probes
Can you walk me through the steps you took to order the fish?	Did you go through an informal or formal procurement process? Who was your fish vendor? Did you purchase fish from more than one vendor?
Can you describe how the fish was prepared (e.g. boil, bake, patties)?	Did cooks receive training? What, if any, equipment and/or tools did you need to purchase for cooks to prepare the fish?
How often did you serve fish? How did you promote it to students and staff? How did students and staff respond?	Was food waste higher or lower than usual? What comments, positive and negative, did you receive?
How, if at all, has your effort to include fish in your meals benefited you and your staff?	How about the students? The community?
What advice would you give to other schools interested in serving fish in their lunch programs?	What should they do in advance to help make the process of procuring and serving fish easier?

Sample

Contact information for all school districts that purchased food through the NAFS pilot program during the 2012-13 school year was obtained from the Alaska Department of Commerce, Community, and Economic Development. School districts that purchased fish were extracted (n=39).

Data Collection

Between October 2013 and February 2014, an e-mail message requesting participation in this study was sent to the contact listed for each school district. Second and third attempts were made to contact individuals first by e-mail and then by telephone. Study participants were entered into a raffle for one of four \$25 gift cards.

Twenty-one of the interviews were conducted by telephone by trained interviewers. One participant responded to interview questions by e-mail (Salmons, 2014). For telephone interviews, detailed notes were taken during the interview and immediately re-read and typed out in full (Rubin & Rubin, 2005; Schensul, Schensul, & LeCompte, 1999). For all interviews, an interview summary sheet was completed after each contact to summarize the main concepts, themes, and issues that emerged in the interview (Miles & Huberman, 1994). Telephone interviews lasted approximately 25 minutes.

Data Analysis

Data were analyzed using applied thematic analysis (Guest, MacQueen, & Namey, 2012; Miles & Huberman, 1994) targeted towards discovering themes with practical program applications. Data were first analyzed using the following sensitizing codes: perceived benefits, facilitators, challenges. Codes were defined operationally and organized into a code dictionary that included the code name, definition, rule, and example of when it should be applied. Coding was an iterative process. New codes progressively emerged during the analyses, and those that were no longer appropriate were discarded and others were broken down into sub-codes or refined. When major code changes were made, data that had already been coded were recoded with a revised dictionary. The interview notes and summary sheets were coded independently by two researchers and compared for inter-coder reliability. After all interviews were coded, a series of displays, as described by Miles and Huberman (1994) for drawing and verifying conclusions about the data, were developed. The University of Alaska Fairbanks Institutional Review Board approved all study procedures.

RESULTS AND DISCUSSION

Twenty-two individuals representing 22 school districts agreed to participate in the study with 3 declining and the remainder (n=14) not responding to the request for an interview. Of the 22 study participants, 12 held manager-level positions, two held supervisor-level positions, four held director-level positions, and five held other positions (e.g. coordinator, specialist, cook). Individuals who declined to participate in the study indicated that they began their position during the 2013-14 school year and were therefore unable to respond to questions about food purchases made during the 2012-13 school year or that they were unable to make time for the interview.

Selected characteristics of participating school districts by public health region are shown in Table 2. Of the 22 participating districts, 15 were located in rural areas and 7 were located in an urbanized area or inside an urban cluster. Thirteen had fewer than 1,000 students enrolled, while 5 had 1,000-5,000 students enrolled, and 3 had more than 5,000 students enrolled.

Table 2. Selected Characteristics of Participating School Districts by Alaska Public Health Region

Public Health Region	Number of Participating Districts	Number of Schools Represented	Number of Students Represented	Free and Reduced-Price Lunch Participation Rate (% , range)
Anchorage/Mat-Su	2	118	65,567	39.0-43.4
Gulf Coast	1	15	1,658	82.8
Interior	3	8	4,616	39.7-53.1
Northern	2	14	2,325	31.0-66.6
Southeast	9	72	17,674	4.8-77.3
Southwest	5	41	5,389	17.7-83.8

Themes

Six themes emerged from the data and are organized into three categories: benefits, facilitators, challenges (Table 3).

Table 3. Categories and Themes Regarding Serving Fish in School Meals

Category	Themes	Sub-themes
Benefits	Quality and variety of protein items	
	Alignment of school meals with community foodways	
Facilitators	Financial feasibility	Grant funding through NAFS
		Fish donations
		Relatively low labor costs
Challenges	Procurement: Initial learning curve	Identifying suppliers
		Ordering correct quantities
		Identifying recipes

Benefits. The nutritional quality of fish emerged as an important benefit of serving fish. Of the 22 study participants, 14 indicated that their NAFS grant improved their meal programs by providing funds to purchase fish, which increased the variety or quality of protein items offered. The study participants (n=22) used their NAFS funds to purchase the following species of fish: salmon, pollock, cod, halibut, and rockfish. The salmon, cod, halibut, and rockfish were purchased as fillets, chunks, strips, and minced fish. Fillets were mostly marinated and baked or simply baked with a minimal amount of seasoning; strips and chunks were used in tacos or added to pasta or rice dishes, and minced fish was used to make patties for burgers. Four school nutrition professionals also purchased salmon in cans or in the form of jerky, patties, or spread. Eight study participants purchased pollock as strips or pre-cooked sticks and nuggets. In addition to increasing the variety and quality of foods offered in their meal programs, 10 study participants emphasized that their NAFS grant allowed them to serve meals that were better aligned with the foodways (i.e. eating habits and culinary practices) of their communities. The commercial fishing industry is a key economic driver in Alaska, and subsistence and personal use fishing support a traditional way of life for many Native and non-Native Alaskans. Among the 22 study participants, 14 indicated that their students were already familiar with and liked to eat the fish served for lunch. Efforts to serve salmon, halibut, and other locally caught fish in school meals also generated goodwill with parents and community members who were pleased that traditional foods were on lunch menus. One school nutrition professional said, “A lot of elders come to eat [lunch] with kids” on days when fish is served.

Facilitators. In contrast to other studies of FTS programs, which have emphasized cost (e.g. labor, food) as a real or potential challenge to serving local foods in meals (Colasanti, Matts, & Hamm, 2012; Joshi & Beery, 2007), the primary facilitator that emerged from interviews with the participants in the current study was the financial feasibility of serving fish, as defined by three sub-themes: grant funding, fish donations, and labor cost. Grant funding

through the NAFS pilot program made cost a non-issue for study participants. When asked if they would continue to serve fish if the grant were no longer available, four participants responded “no” and 18 participants responded “yes.” Among those who responded “yes,” however, 11 indicated that, without continued funding, the variety of fish and the frequency with which it was served would decrease; two study participants specifically indicated that without their NAFS grants they would only be able to purchase pollock sticks.

Fish donations also facilitated study participants to serve fish in their school meal programs. In Alaska, state regulations allow a school lunch program to accept fish donations from commercial sources provided that certain conditions are met (State of Alaska, 2010). Six study participants received donated fish during the 2012-2013 school year. In some cases, commercial fishermen donated fish to a fish processor and school districts paid for the processing. In others, fish processors donated their services and/or donated processed fish. Four study participants indicated that absent their NAFS grants, they would rely on fish donations to procure fish for their school meal programs.

Four study participants emphasized the ease with which fish can be prepared. Although this finding is inconsistent with studies of other FTS programs which have emphasized the labor cost of preparing whole fruits and vegetables as a real or potential barrier to serving local foods in school meals (Colasanti et al., 2012; Izumi, Rostant, Moss, & Hamm, 2006; Joshi & Beery, 2007), it was not surprising for two reasons. First, of the 22 school nutrition professionals interviewed, 21 worked at school districts which already had the equipment and skilled labor force needed to cook meals from scratch. In three of the school districts, school nutrition staff included individuals who had gone to culinary school or who were trained as chefs while others attended a training or just “followed recipes.” Second, six study participants purchased heat-and-serve fish products, such as pollock sticks, which required minimal labor to prepare. In studies of other FTS programs (Colasanti et al., 2012; Izumi et al., 2006; Joshi & Beery, 2007), school districts may not have had access to the equipment and skilled labor needed to prepare whole fruits and vegetables (e.g. butternut squash). In addition, minimally processed fruits and vegetables (e.g. peeled and cubed butternut squash) may not have been available or when available, may have been cost-prohibitive.

Challenges. In addition to benefits of and facilitators to serving fish in school meals, six study participants made reference to challenges which had an initial learning curve associated with procuring fish. Identifying suppliers, ordering the correct quantity of fish, and identifying recipes through trial and error were the most frequently mentioned short-term challenges. These challenges are consistent with studies of other FTS programs (Allen & Guthman, 2006; Colasanti et al., 2012; Gregoire & Strohbehn, 2002; Izumi et al., 2006) which have emphasized supply and food distribution as top concerns related to local school food procurement. In contrast to studies of other FTS programs, issues related to cost and seasonality were not mentioned by the study participants as challenges to serving fish in school meals.

CONCLUSIONS AND APPLICATION

This study is the first in the peer-reviewed literature to explore school districts’ efforts to offer fish in school meals. Given the 2010 Dietary Guidelines for Americans, which listed increasing

seafood intake among its key recommendations (U.S. Department of Agriculture & U.S. Department of Health and Human Services, 2010), this study may be useful to school and child nutrition professionals who are interested in promoting fish consumption through school meals.

The school nutrition professionals interviewed for this study perceived fish to be a high quality protein item that added variety and enhanced the quality of their school meal programs. Although Alaskan pollock blocks have been offered to school districts since 2010, it has typically been processed into breaded fish products. The NAFS provided school nutrition professionals with the opportunity to serve higher quality fish and to serve fish in school meals with greater frequency. These benefits are consistent with the benefits associated with local food procurement that have been identified in the FTS literature (Harvard School of Public Health, n.d.; Izumi et al., 2006; Izumi et al., 2010; Schafft, Hinrichs, & Bloom, 2010). In addition to quality, variety, and frequency, the study participants spoke about the ancillary benefits of serving locally caught fish in meals, including better alignment of the school meal programs with the foodways of their communities. Efforts to serve fish in school meals were facilitated by the NAFS grant funding, fish donations, and the relatively low cost of preparing fish, all of which made the addition of this protein item financially feasible. Challenges were short-term and included identifying suppliers, ordering correct quantities, and identifying recipes.

Notably, the majority of the study participants acknowledged that without the NAFS grant, the variety and quality of fish and the frequency with which they served fish would decrease. This finding raises important questions about the long-term sustainability of efforts to serve fish in Alaskan school meals given the high cost of locally caught fish and suggests opportunities for development of fish products that can be purchased within the budget constraints of school foodservice.

In Alaska, salmon, halibut, rockfish, and pollock have social, cultural, and economic significance and are abundantly available and commonly consumed. In addition, Alaska's commercial fisheries are considered a model for natural resource stewardship (Alaska Department of Fish and Game, n.d.). School nutrition professionals in the Lower 48 interested in adding fish to their menus should serve fish that are culturally appropriate, abundantly available, and sourced using good management practices that protect the marine environment, maintain fish stocks, and safeguard jobs. In areas where fish is abundantly available but not commonly consumed, it may be necessary to provide staff with training on proper storage, handling, and preparation of fish and students with hands-on opportunities to taste fish.

Several limitations of this study should be noted. First, this study was conducted with 22 nutrition professionals representing 22 school districts in Alaska and did not include school nutrition professionals who declined to participate in the study, those who did not purchase fish using NAFS funds, and school nutrition professionals in the Lower 48 who purchase fish for their cafeterias. As a result, the findings are not generalizable to all school nutrition professionals with experience serving fish in school meals. Future studies should include school nutrition professionals representing school districts in the Lower 48 to examine the feasibility of serving fish in school meals within the time and budget constraints of school foodservice absent NAFS grant funding. In addition, because fishing is one of Alaska's top industries, school nutrition professionals in the state may be more familiar with how to prepare fish than their colleagues

elsewhere in the United States. Therefore, increased labor costs associated with training may make serving fish in school meals more costly in areas outside of Alaska. Future studies should also include school nutrition professionals representing a greater diversity of school districts in terms of region, setting (i.e. rural, urban, suburban), student populations, and types of food service operations. Second, this study did not explore perspectives of students. Future studies should examine if or to what extent serving fish in school meals improves students' knowledge and attitudes about eating fish and increases students' overall fish intake. Finally, the interviews used for this study were not audio-recorded due to financial constraints associated with transcribing tape-recorded interviews. Instead, note taking methods described in Rubin & Rubin (2005) and Schensul, Schensul, & LeCompte (1999), were used to summarize the main concepts, themes, and issues that emerged in the interviews.

As schools and school districts across the country continue to source more foods locally, demand for local center of the plate protein items will continue to grow (U.S. Department of Agriculture, n.d.). Technical assistance and resources such as recipes and procurement guides may help to mitigate some of the short-term challenges of serving fish in school meals while grants may help to off-set costs and allow school nutrition professionals to purchase a variety of high quality fish. This study illustrates the perceived benefits, facilitators, and challenges of serving fish in school meals in Alaska, where fishing is an important part of the Alaskan economy and culture. In areas where sustainably harvested fish is abundantly available, serving fish in school meals may help students meet their dietary recommendation for seafood.

ACKNOWLEDGEMENTS

We gratefully acknowledge the school nutrition professionals in Alaska who shared their experiences serving fish in their school lunch programs and the two anonymous peer reviewers whose insights substantially improved this manuscript. This research was supported by Agriculture and Food Research Initiative Competitive Grant no. ALKR-2010-03936 from the USDA National Institute of Food and Agriculture (PI: Bersamin).

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