

**Abstract Knowledge and Preferences of School Nutrition Policies and Fish Products  
of Alaskan School District Menu Planners**

by

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## **Abstract**

The University of Alaska Fairbanks Fishery Industrial Technology Center on Kodiak Island has worked on a project to assess the frequency and type of fish products being used and what are the desired products for school menus in districts participating in the National School Lunch Program. Secondly, Alaska's local educational authorities' menu planners' knowledge, opinions and progress toward school nutrition policies and menu analysis outcomes were also assessed.

Surveys were mailed to 73 school districts participating in the National School Lunch Program in Alaska. The surveys contained questions regarding the current status of nutrition policies and the impact on menu planning with the recent obesity data showing the trend that the state's youth are overweight or at an increased risk of becoming overweight. It also addressed the outcome results of their district's Healthy School Meals Initiative where a one week menu is analyzed to ensure compliance with the state's nutrition standards. The second half of the survey asked questions specifically toward current fish usage, menu preferences, pricing, nutritional labeling and market and purchasing considerations and purchasing practices.

Survey results showed that the majority of school districts have nutrition policies in place and that most are familiar with the state nutrition standards and Healthy School Meals Initiative. Nearly all respondents believe school meals are important in learning and were concerned with the recent obesity data and 64% having made menu changes since becoming aware of the obesity information. Of the 53 districts who had a SMI Review completed while in their position only 10 did not receive recommendations for menu improvements. The most cited menu problems included fiber, total fat, sodium,

total calories and saturated fat. The remaining results revealed that fish was being served once or twice by 48% of the respondents or 30 districts and at least once a week by 25% or 16 of the districts. The most favorable forms were fish sticks, fish nugget and fish patty or burger. The most desirable cooking method was oven baked with no cooking required being the next preferred method. Product price, availability, child nutrition label, and shelf life ranked most important in purchasing considerations. Fifty districts or 89% of the respondents participate in the USDA Commodity program in addition to most using one or two primary vendors (82%). More than half of the respondents (54%) order food every one to two weeks for school menus. Menus are most frequently revised more than once a year.

It is the authors' opinions that introducing "favorable" fish products may be a useful resource to address nutritional analyses outcomes and indirectly address the growing concern of childhood obesity by providing a healthy option that can be made to meet state nutritional standards and coincide with the 2005 Dietary Guidelines for Americans.

## **Introduction**

Alaska's population may be growing in total numbers but the state's inhabitants are also growing in size or body mass index. The U.S. Center for Disease Control's Obesity Trends by state Body Mass Index data reveals Alaskans are following national trends in that the numbers of overweight or obese adults are increasing at an alarming rate (1). In Alaska, data from the Youth Risk Behavioral Survey indicate that 29% of male high school students and 21% of female high school students are over weight or at risk for becoming overweight. (2). Less information has been compiled regarding children younger than high school age in Alaska. However, in a recent report collaborated by the Anchorage School District and the Alaska Division of Public Health, even our youngest students appear to be following national trends (3, 4).

The obesity epidemic is having a significant impact on the local educational authorities as the United States Department of Agriculture (USDA), Center for Disease Control and Prevention and the US Department of Education attempt to intervene to minimize the potential number of health related problems associated with overweight and obesity. The Child Nutrition and Supplemental Nutrition Program for Women, Infants and Children (WIC) Reauthorization of 2004 was signed into law on June 30, 2004. As a result, school districts (local educational authorities) participating in federally funded programs such as the National School Lunch Program or the School Breakfast Program will be required to have "local wellness policies" by the first day of the 2006-'07 school year. These policies must include nutrition guidelines for all foods sold on school campuses throughout the school day. They must also address nutrition education,

physical activity and other school-based activities that are designed to promote student wellness, including reduction and prevention of obesity (5).

The National School Lunch Program (NSLP) and the USDA Commodity Program may be an excellent venue to introduce healthier options to our nation's children. Over 29 million children are served at schools or residential child care institutions (RCCI's) every day (6). It has also been demonstrated that meals served through the NSLP are more nutritious than other means such as meals from homes, vending machines, or off campus options (7, 8). One food product group that would contribute greatly to the wellness of our nation's children is seafood and fish products. Seafood or fish products are rich in nutrition and generally high in protein and relatively low in fat and saturated fat and calories. Some species are rich in valuable omega-3 fatty acids that provide a spectrum of health benefits (9, 10, 11).

Given the concern of obesity and the emphasis of wellness for Alaska's schools, the objective of this work is two-fold. One is to assess the knowledge and attitude of school meal managers towards implementation of healthier meals in school districts. Second, to determine the knowledge of health benefits of fish and fish products by school district managers, and fish product attributes that school district favors, and the amount of fish usage in the Alaskan school system.

## **Methods**

The objectives of this study were conducted by mail survey. Initial contact was made with each intended survey respondent through either a phone call or e-mail describing the project and encouraging them to respond to the forthcoming survey. A twenty-one question survey was mailed to 73 school district menu planners who

participate in the National School Lunch or School Breakfast Program in February 2005. The survey questions were divided into two specific subsets. The first addressing student nutrition policies and what, if any barriers had they encountered with implementation. This section also addressed the Healthy School Meals Initiatives occurrences and results as well as concerns and actions resulting from the obesity information. The other subset of questions addressed knowledge of health benefits related to fish, desirable product forms of fish, fish usage, cooking processes, menu revisions, and importance of packaging, nutritional labeling, brand and shelf life on menu planning decisions and revisions. The survey questions were designed based on executive interviews with school districts menu planner or food service manager, then were to be pre-tested in a small subset of the said population.

## **Results**

Seventy-three surveys were mailed to school district food service coordinator. Sixty- three surveys were filled and returned, resulting in a response rate of 86.3%. Results of questions relating to student nutritional policy, familiarity with Healthy School Meals Initiative, and State of Alaska nutrition standards are presented in Table 1. This table also included the results of opinion questions concerning the support of learning improvement by school meals, concerns about the increase in obesity, and changes in school meals due to obesity information.

For policy related statements, results show that over 80% of the respondents are familiar with Healthy School Meal Initiative (84.13%, n=53), and has a copy of state nutritional standards (87.30%, n=55), while 66.67% (n=42) of the respondents has a student nutrition policy. With regards to opinion on the statement “school meals improve

learning” and concerned about increase in overweight and/or obesity, all 63 respondents except one (98.14%) answered “yes”; while 63.49% (n=40) acknowledged that the school meals changed because of obesity information (Table 1).

Questions regarding to barriers to nutrition policy implementation are presented in Table 2. The respondents are allowed to have multiple answers since barriers can be multi-dimensional. Twenty-six respondents (35.62%) stated that there were no barriers. Fourteen responses (19.18%) each were cited on problems regarding differences in opinions between decision makers and lack of resources or guidance. Ten responses (13.70%) were recorded on the loss of potential revenue. Less than 10% of the respondents responded to “not a priority at this time” (n=7), “no leadership” (n=1), and “no response” (n=1).

The next set of questions address the recommendations for menu improvements and institutional Coordinated Review Effort (CRE) and School Meals Initiative Review Results. Table 3 presents the results of whether the respondent was present in their current position and the year of most recent CRE and/or School Meals Initiative Review. Of the 63 respondents, 53 (84.12%) noted that they were present for the last review. With regard to the year of the most recent review, the three highest frequencies of reviews were 20 in 2004, and 10 in both 2002 and 2003.

We then asked the respondents if they received any recommendations for menu improvements. Of the 63 respondents, 53 (84.12%) responded positively. Then a follow-up question was posted to the respondents in nutrient areas that need improvement, and that multiple responses are welcome. Forty-seven responses were recorded (Table 4). The five most cited areas were fiber with 19 responses (40.43%),

total fat with 18 responses (38.30%), sodium with 16 responses (34.04%), calories with 15 responses (31.91%), and saturated fat with 7 responses (14.89%).

An objective of this study is to determine the frequency of usage, the preferred product form and cooking methods, and considerations of marketing variables for purchase of seafood products in Alaskan school districts. We first asked the respondents if they are aware of the health benefits associated with eating fish and if they are currently participating in the USDA commodity program. With regards to health benefits associated with eating fish, 58 (92%) of the 63 respondents responded affirmatively. Five (8%) responded no. Results also show that a vast majority (81%, n=51) of the responding school districts participate in the USDA commodity program, eleven (17%) responded no, with one (2%) unknown.

We also asked the respondents the frequency of fish based product served on menu. Thirty school districts served fish or fish based products once or twice a month (47.62%). This is followed by once a week (25.4%, n=16), and never (7.94%, n=5). Interestingly, 3 school districts (4.76%) served fish or fish-based products twice a week.

In order to increase the acceptance of fish and fish-based products in Alaskan school districts, we would like to know the taste and preferences of product forms to students and the preferred cooking methods that work best for food preparation personnel (Table 6 and Table 7). Specifically for product form, we asked the respondents to score each fish item (e.g. fish nugget) from 1 to 5, 1 being least acceptable and 5 being most acceptable.

Results for product forms show that fish stick is most preferred with an average score of 3.84 (S.D. = 1.09), followed by fish nugget (3.74, S.D. = 1.12), fish patty or burger (3.20, S.D.= 1.36), fresh or frozen fish fillets (2.92, S.D. = 1.55), and pouched or flaked

product (2.41, S.D. = 1.39, Table 6). Three respondents stated that none of the product forms are acceptable.

For cooking processes that would work best for the respondent's school, oven baked is the most preferred method with an average score of 4.65 (S.D.= 1.01, Table 7). This is followed by no cooking required (3.56, S.D.= 1.48), then microwave (2.00, S.D.= 1.38), and finally deep fried (1.95, S.D. = 1.33).

We also asked the presenters to rate the importance of several product attributes that would influence purchasing considerations of the respondents. These attributes include product uniqueness/novelty, packaging, nutrition program labeling, shelf-life, price, availability, and Alaskan origin (Table 8). Results for the three most important attributes are price, with an average score of 4.50 (S.D. = 0.85), followed by product availability (4.37, S.D. = 1.01), and nutrition program label (4.00, S.D.= 1.10). The least important attribute is product packaging (2.95, S.D.= 1.45).

The final set of questions pertains to the respondents' buying practices for their school districts. Table 9 shows the results of the types of organizations/programs that school districts purchase their food. The three most common sources are the USDA Commodity program with 50 responses (89.29%), one or more private sector vendors with 46 responses (82.14%), and food purchase locally with 35 responses (62.50%).

Another buying practice related question concerns the time of purchase of food menu items for the new school year (Table 10). More than 50% of the respondents (n=34) purchased their food menu items one to two weeks in advance, as oppose to 30.16%(n=19) that purchase one month in advance, 12.70%(n=8) that purchase three months in advance, and 19.05%(n=12) that purchase more than three months in advance.

## **Conclusions**

In June, 2004, Congress passed Public Law 108-265, the Child Nutrition and WIC Reauthorization Act of 2004. Section 204 of this law requires all local education agencies participating in a program authorized by the Richard B. Russell National School Lunch Act or the Child Nutrition Act of 1966 to establish a local school wellness policy by the start of the 2006-2007 school year. The return response of the 73 surveys mailed to Alaska school districts participating in the National School Lunch or School Breakfast Program was 86.3% or an excellent return rate. It is clear many districts throughout the state had begun work toward improving children's nutrition through school meals and with nutrition related policies well in advance of the law. Of the six required components to local school wellness policies two may be very applicable to this study. The requirement of nutrition guidelines for all foods available at school may be useful in promoting the health benefits of Alaskan fish. Most fish provide high protein and are low in saturated fat. Some types of fish contain a favorable composition of heart healthy fats known as omega 3 fatty acids. The specific component of implementing goals for nutrition education would also provide an opportunity to teach children at an early age that fish is a healthy addition to their diets. With the 2004 Child Nutrition Reauthorization Act and the enhanced monitoring of meals being served with the Healthy School Meals Initiative (SMI) small steps are being gained in the battle against childhood obesity and minimizing future generations of children at potential risk.

As our nation begins to deal with the issue of increasing overweight and obesity the school environment will play an important role. Decisions for nutrition guidelines for all foods sold on school campuses throughout the day may significantly impact revenue

of other programs such as sports or physical education activities (12). Differences in opinions of the task force members or decision makers will require negotiations and compromises. (13, 14) Since 1999, 53 districts received a SMI review and of that number 43 received menu recommendations. Attention to fiber content of meals ranked first with 40% of the respondents being below standards. The use of a whole grain bread or topping on a frozen fish stick or patty could improve total fiber content of meals when fish is served weekly. Total fat content of meals was second (38%) and it should be noted that respondents were not questioned as to whether their values were too high or too low. **It is the authors' assumption that most districts were likely to exceed the fat standards and by adding fish to menus in place of higher fat protein sources this would reduce the total fat content of school menus.** State data does exist but it is difficult to assess because of the changes in methodology used to analyze the menus over the course of the five years. Sodium content was a concern for 34% which means they exceeded the standard. Total calories which could be either too low or too high were prevalent for 32% of the respondents. For those districts exceeding the calorie levels adding a fish based product to the menu may be a convenient and acceptable way of remedying the problem. Lastly saturated fat was too high for 15% of the districts. Again Recommendations are provided to districts by the menu analyzer and follow through is required by the districts. Nearly 100% (98%) of survey respondents voiced concern about increasing number of overweight and obese students. Their concern was translated into 64% of them making menu changes related to the obesity information. It is clear that school menu planners and state agencies are working toward a common goal.

This work also examines the usage and desirability of fish products in Alaska's school system. Close to 30% of the school districts are serving fish based products once or twice a week, and slightly more than 47% of the school districts are also serving fish and fish based products once or twice a month. In order to further increase the use of fish products, additional research is needed to make it more affordable to schools as price was the number one factor for 66% of the districts. Further, our preliminary research on product form and cooking method attributes shows an oven based fish stick or fish nugget product seems promising.

In summary, introducing fish and fish based products through the USDA Commodity Program may be an effective way to provide an affordable and available product to those school districts participating in the National School Lunch Program and further work is needed in this area. Children need to be included in sample tasting of several different products and educated on the health benefits of fish as earlier stated. With the implementation of local school wellness policies the government could assist and lead the way for local educational agencies not only to provide healthy meals at an affordable price but allow easier access to quality fish based food sources.

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<b>Statements</b>	<b>Yes</b>	<b>No</b>	<b>Don't Know</b>
Has student nutrition policy	42 (66.67%)	19 (30.16%)	2 ( 3.17%)
Is familiar with Healthy School Meals Initiative	53 (84.13%)	10 (15.87%)	0 ( 0.00%)
Has copy of state nutrition standards	55 (87.30%)	7 (11.1%)	1 ( 0.00%)
Support that school meals improve learning	62 (98.41%)	1 ( 1.59%)	0 ( 0.00%)
Concerned about increase in overweight and/or obesity	62 (98.41%)	2 ( 3.17%)	0 ( 0.00%)
School meals changed because of obesity information	40 (63.49%)	23 (36.51%)	0 ( 0.00%)

<b>Barriers</b>	<b>Problem Source</b>
Differences in opinions between decision makers	14 (19.18%)
Loss of potential revenue	10 (13.70%)
Lack of resources or guidance	14 (19.18%)
Not a priority at this time	7 ( 9.59%)
No barriers	26 (35.62%)
No leadership	1 ( 1.37%)
No Response	2 ( 2.74%)

<b>A. Presence in Last Review</b>			
	<b>Yes</b>	<b>No</b>	<b>Don't Know</b>
Presence	53	8	2
<b>B. Year of Most Recent Review</b>			
<b>Year</b>	<b>Response</b>		
1999	3		
2000	3		
2001	7		
2002	10		
2003	10		
2004	20		

<b>Nutrient</b>	<b>Response</b>
Fiber	19 (40.43%)
Total Fat	18 (38.30%)
Sodium	16 (34.04%)
Calories	15 (31.91%)
Saturated Fat	7 (14.89%)
Vit C	6 (12.77%)
Vit A	5 (10.64%)
Calcium	3 ( 6.38%)
Cholestrol	3 ( 6.38%)
Iron	3 ( 6.38%)

None	3 ( 6.38%)
Protein	2 ( 4.26%)
*Note: Multiple Responses	

<b>Frequency</b>	<b>Response</b>
Once a week	16 (25.40%)
Twice a week	3 ( 4.76%)
Once or Twice a month	30 (47.62%)
Less than once a month	1 ( 1.59%)
Once every 3 months	4 ( 6.35%)
As donated	2 ( 3.17%)
Never	5 ( 7.94%)
No Response	2 ( 3.17%)

<b>Product</b>	<b>Number of Responses</b>	<b>Average Rating</b>	<b>S.D.</b>
Fish nugget	54	3.74	1.12
Fresh or Frozen Fillets	50	2.92	1.55
Fish patty or burger	46	3.20	1.36
Fish stick	50	3.84	1.09
Pouched or flaked	46	2.41	1.39

<b>Process</b>	<b>Number of Responses</b>	<b>Average Rating</b>	<b>S.D.</b>
Oven baked	57	4.65	1.01
Deep fried	44	1.95	1.33
Microwave	41	2.00	1.38
No cooking required	34	3.56	1.48

<b>Considerations</b>	<b>Number of Responses</b>	<b>Average Rating</b>	<b>S.D.</b>
Utilizing "Alaskan" seafood in your school	59	3.36	1.45
Product uniqueness or novelty	62	3.11	1.26
Product packaging	61	2.95	1.45
Child nutrition program label	62	4.00	1.10
Shelf-life	60	3.98	1.10
Product price	60	4.50	0.85
Product availability	60	4.37	1.01

<b>Source</b>	<b>Responses</b>
USDA Commodity Program	50 (79.37%)
One or more primary vendors	46 (73.02%)
Purchase Locally	35 (55.56%)
Bid Basis	16 (25.40%)
Food Service Contract	10 (15.87%)
No response	7 (11.11%)
Other	4 ( 6.35%)
Donations	3 (4.76%)
Food Bank	3 (4.76%)

\* Multiple Responses

<b>Time</b>	<b>Response</b>
One to 2 Weeks	31 (49.21%)
One month	15 (23.81%)
Three months	7 (11.11%)
Greater than 3 months	10 (15.87%)