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Consumption habits of fish in Zacatecas city

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Abstract

In recent years, in Zacatecas has promoted the production of several species of fish, including tilapia, carp, bass, etc, through dams or farms. But recent studies have found that fish consumption annual per capita in the state is just 800 grams. This research is based on identifying and describing the habits of fish consumption in the city of Zacatecas as a base to detonate the merchandising of these products in the state.

Consumer habits, use of natural resources, commercialization.

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Introduction

This research is based on identifying the habits of fish consumption in the city of Zacatecas and conurbation, in order to lay the groundwork for, in subsequent studies, develop a strategy to help aquaculture producers in the region, to market and position their products in the state, as it is one of the activities, alternative to agriculture and livestock which has been promoted in recent years. People are unaware of these products, even though the state is landlocked. However it has several dams which are cultivating various aquaculture species, including tilapia, carp, and largemouth bass, among others.

This research consists of four sections. The first section describes the problem and justification of the research. In the second section it is exposed the contextual framework that gives rise to this investigation. In the third section it is established the methodology used to support research and ensuring the accuracy of the results. And the fourth and final section presents the results and conclusions presented.

Background of the problem

Under the National Development Plan, within the shaft 4 Mexico Prosper: 4.10 objective mentions the importance of building a productive agriculture and fisheries to ensure food security. Under this heading, in recent years, it has been encouraged aquaculture in the state of Zacatecas, mainly Tilapia production.

However, some of the farms for which resource and funding was granted for their installation, are currently without production and those that are producing, they have declared present stagnation and little or no increase in marketing their products.

Delimitation of the problem

With the results of this research it will obtained the fish consumer characteristics and habits in the consumption of it, being the basis for further research to culminate in a marketing program for this product, both at the state, national and international. This being the research question: What are the habits of fish consumption in the city and its suburbs Zacatecas?

Justification

One of the main aspects to establish a marketing program is primarily to know the consumer. In the case of aquaculture products produced in Zacatecas, there was so far a study to determine the characteristics and habits of customers for these products. That is why this research is crucial to know the consumer, then perform an integration program for aquaculture producers based on the needs of customers, including from cultivation to marketing their products.

Contextual framework of consumption and production of fish in Mexico

Although fish consumption has increased in recent years, reaching a per capita consumption of 10 kgs per year, this is below the world average, which is 18 kgs (CONAPESCA); and well below countries such as Japan and some European countries where consumption becomes more than 30 kg, per year. Similarly seafood, are the foods least consumed in Mexico.

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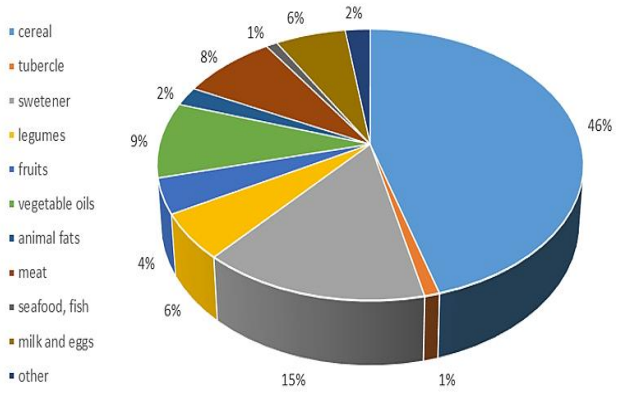

Figure 1 Percentage of food energy supplies in Mexican food

In Mexico, the total production is 1.7 million tons of which 249 thousand tons of product is exported at a cost of 842 billion dollars' worth of exports (COMEPESCA), making it the fourth country in the Americas with greater volume, just after Peru, USA and Chile (Cuéntame).

Of total production, 60 percent is made up of five species: shrimp, tilapia, oyster and carp.

Tons						
Kind	2007	2008	2009	2010	2011	2012
Total	**267772**	**283625**	**285019**	**270717**	**262855**	**254026**
Catfish	2801	3041	3145	3384	2929	3018
Shrimp	111787	130201	133282	104612	109815	100321
Carp fish	21798	24157	22620	24231	18528	19956
Charal	1483	2338	1876	1806	1226	1275
Crawfish	46	24	21	26	18	46
Lobina	1234	1221	1379	1354	1044	641
Crappie	73580	71018	73373	73899	71135	72779
Ostión	46491	42148	38974	47611	43757	43567
Trout	4345	4917	6065	6919	8480	7026
Other	4206	4561	4284	3789	5922	5397

Table 1 Volume of aquaculture production in live weight by main species. Annual series 2007-2012

Aquaculture production in Mexico is divided between coastal states (Pacific, Gulf and Caribbean), as well as landlocked states, where the states of the Pacific coast have the highest production.

Toneladas

Litoral y entidad federativa	2010	Part. %	2011	Part. %	2012	Part. %
Total	1 619 982	100.0	1 660 475	100.0	1 687 498	100.0
Litoral del Pacífico	1 296 582	80.0	1 379 995	83.1	1 393 324	82.6
Baja California	119 320	7.4	135 619	8.2	112 787	6.7
Baja California Sur	188 693	11.6	151 186	9.1	166 718	9.9
Sonora	561 166	34.6	610 706	36.8	618 799	36.7
Sinaloa	276 388	17.1	337 864	20.3	341 042	20.2
Nayarit	27 043	1.7	37 889	2.3	41 789	2.5
Jalisco	21 122	1.3	14 454	0.9	9 914	0.6
Colima	34 988	2.2	32 487	2.0	31 893	1.9
Michoacán de Ocampo	13 061	0.8	10 833	0.7	16 658	1.0
Guerrero	7 515	0.5	8 954	0.5	9 158	0.5
Oaxaca	13 568	0.8	10 148	0.6	9 218	0.5
Chiapas	33 715	2.1	29 873	1.8	35 348	2.1
Litoral del Golfo y Caribe	284 658	17.6	239 188	14.4	257 569	15.3
Tamaulipas	57 745	3.6	38 902	2.3	45 545	2.7
Veracruz de Ignacio de la Llave	91 218	5.6	79 268	4.8	75 270	4.5
Tabasco	40 773	2.5	37 998	2.3	40 741	2.4
Campeche	54 533	3.4	43 226	2.6	52 255	3.1
Yucatán	36 120	2.2	34 965	2.1	40 018	2.4
Quintana Roo	4 269	0.3	4 828	0.3	3 741	0.2
Entidades sin litoral	38 742	2.4	41 293	2.5	36 605	2.2
Aguascalientes	464	NS	59	NS	79	NS
Coahuila de Zaragoza	926	0.1	1 361	0.1	1 269	0.1
Chihuahua	823	0.1	758	NS	1 354	0.1
Durango	3 852	0.2	4 873	0.3	1 951	0.1
Guanajuato	3 055	0.2	2 856	0.2	2 679	0.2
Hidalgo	7 066	0.4	8 758	0.5	8 035	0.5
México	11 635	0.7	12 611	0.8	12 628	0.7
Morelos	1 165	0.1	1 658	0.1	829	NS
Nuevo León	125	NS	149	NS	186	NS
Puebla	4 653	0.3	3 349	0.2	2 430	0.1
Querétaro	685	NS	680	NS	356	NS
San Luis Potosí	1 559	0.1	1 655	0.1	2 445	0.1
Tlaxcala	608	NS	457	NS	465	NS
Zacatecas	2 106	0.1	2 069	0.1	1 880	0.1

Table 2 Volume of fish production in live weight and percentage share by coast and federal entity. Annual series from 2007 to 2012.

Contextual framework of fish consumption in Zacatecas

Zacatecas is among the states with landlocked aquaculture production. This production has increased in recent years:

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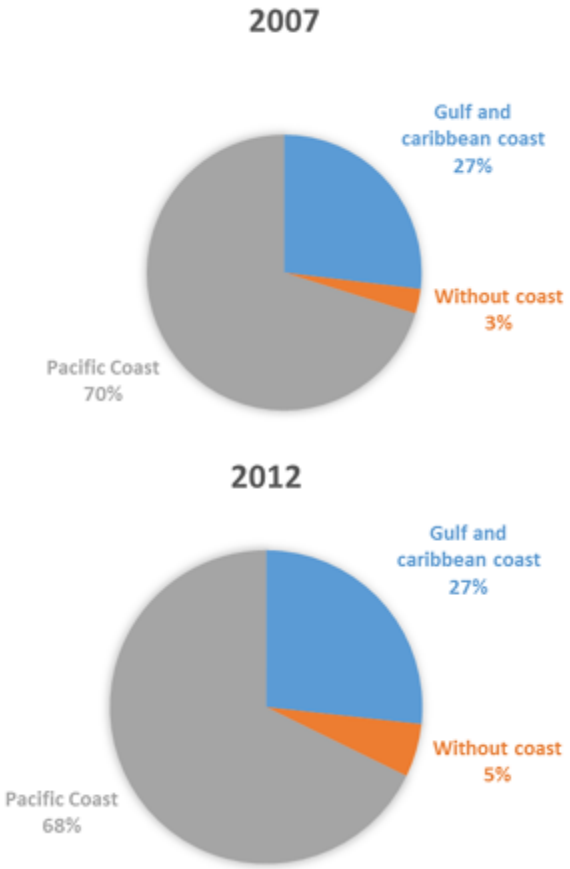

Figure 2 Percentage structure by type of coastline, 2007 and 2012

Among the species most occur in Zacatecas are crappie and carp:

Tons

Coast and state	2007	2008	2009	2010	2011	2012
Total	85 072	74 874	77 009	81 250	75 927	77 547
Pacific Coast	49 619	43 425	42 945	42 555	39 542	45 922
Baja California	43	75	75	53	144	200
Baja California Sur	359	343	373	539	392	395
Sonora	1 172	782	1 578	1 241	922	424
Sinaloa	7 243	7 500	6 974	9 192	6 335	6 017
Nayarit	6 753	6 292	6 809	7 048	6 107	7 990
Jalisco	9 706	7 731	8 098	9 732	7 677	4 170
Colima	1 739	308	193	432	345	331
Michoacán de Ocampo	14 884	12 725	9 129	5 824	6 597	13 330
Guerrero	1 820	1 796	1 924	1 500	1 168	1 533
Oaxaca	980	884	782	759	623	571
Chiapas	4 921	4 988	7 011	6 236	9 231	10 962
Gulf and Caribbean Coast	27 221	22 259	24 238	28 391	23 091	21 190
Tamaulipas	4 547	4 390	5 774	9 245	6 675	4 698
Veracruz de Ignacio de la Llav	15 185	13 142	13 523	14 839	11 561	11 292
Tabasco	6 334	3 774	3 972	3 082	3 487	3 840
Campeche	824	548	751	923	1 051	1 125
Yucatán	149	270	123	230	213	147
Quintana Roo	182	134	93	71	104	88
Without coast	8 231	9 190	9 826	10 303	13 294	10 436
Aguascalientes	298	306	291	268	35	36
Coahuila de Zaragoza	183	123	115	133	183	193
Chihuahua	172	143	113	173	136	194
Durango	720	890	890	579	2 005	567
Guanajuato	962	1 130	1 476	1 327	1 025	934
Hidalgo	2 339	2 318	2 392	2 141	4 538	3 991
México	559	656	925	972	1 033	1 100
Morelos	161	580	622	932	991	778
Nuevo León	26	44	44	60	77	104
Puebla	331	769	783	843	65	51
Querétaro	663	360	307	469	518	223
San Luis Potosí	279	243	243	688	1 048	785
Tlaxcala	33	42	38	77	30	19
Zacatecas	1 505	1 566	1 587	1 642	1 610	1 461

Table 3 Production of crappie

However, although in Zacatecas aquaculture products are produced, it is one of the states with lower processing industry:

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Economic activity and State	Number of Companies	Contract Personnel	Remuneration (thousands pesos)	Gross total production (thousands pesos)	Gross added Value (thousands pesos)	Gross fixed capital formation (thousand pesos)	Total changes in inventories (thousand pesos)	Total fixed assets (thousand pesos)
Preparation and packaging of seafood	208	12 617	512 155	8 952 781	2 549 826	453 086	- 78 370	3 301 668
Aguascalientes	ND	ND	ND	ND	ND	ND	ND	ND
Baja California	16	363	47 080	198 158	77 620	879	- 499	103 445
Baja California Sur	14	1 808	131 359	748 037	274 613	18 469	-1 625	306 978
Campeche	ND	23	971	19 564	9 958	0	0	9 328
Coahuila de Zaragoza	ND	3	186	2 400	1 149	0	0	55
Colima	ND	708	0	919 326	162 684	2 169	23	348 396
Chiapas	ND	246	11 181	41 475	12 447	274	0	24 616
Chihuahua	ND	3	0	48	15	0	0	6
Distrito Federal	ND	10	570	2 400	1 737	0	0	0
Durango	ND	ND	ND	ND	ND	ND	ND	ND
Guanajuato	ND	3	0	4 500	1 680	0	0	2 275
Guerrero	ND	ND	ND	ND	ND	ND	ND	ND
Hidalgo	ND	ND	ND	ND	ND	ND	ND	ND
Jalisco	ND	27	1 242	10 680	4 241	0	0	4 485
México	ND	60	13 717	81 184	41 758	0	0	12 516
Michoacán de Ocampo	9	99	3 660	38 370	21 205	4	0	27 252
Morelos	ND	ND	ND	ND	ND	ND	ND	ND
Nayarit	ND	113	0	31 313	7 428	1 395	0	9 116
Nuevo León	ND	ND	ND	ND	ND	ND	ND	ND
Oaxaca	13	25	48	3 801	931	0	0	128
Puebla	ND	27	2 123	19 797	6 504	263	25	1 468
Querétaro	ND	ND	ND	ND	ND	ND	ND	ND
Quintana Roo	ND	ND	ND	ND	ND	ND	ND	ND
San Luis Potosí	ND	ND	ND	ND	ND	ND	ND	ND
Sinaloa	45	3 977	75 213	4 035 570	844 626	293 096	- 78 491	1 356 460
Sonora	52	4 251	189 733	2 134 925	813 540	129 465	- 407	978 899
Tabasco	ND	ND	ND	ND	ND	ND	ND	ND
Tamaulipas	ND	457	8 582	231 941	134 906	306	- 917	22 139
Tlaxcala	ND	3	60	220	138	0	0	9
Veracruz de Ignacio de la Llave	12	64	2 507	30 886	4 860	658	4	5 833
Yucatán	13	344	23 923	397 884	127 735	6 108	3 517	88 239
Zacatecas	ND	3	0	302	21	0	0	25

Table 4 Enterprise characteristics of preparation and packaging of seafood

Research methods

For this research an analytical descriptive cross-sectional study in which 324 research instruments were applied and by which the level of consumption of aquaculture products was determined with particular emphasis on consumption zacatecana tilapia, among a random sample of people that were carried out in Zacatecas. The data included demographic aspects such as place of residence and colony, which helped them classify participants elements.

The data obtained were treated through SPSS Statics for Mac.

A descriptive analysis variable where measures of central tendency and descriptive statistics for each of the questions that formed the instrument used was obtained.

Results

After analyzing the data, the following results were obtained, which are usually presented (fish consumption) to the particular (zacatecana consumption tilapia).

As for fish consumption it was obtained that 75% of respondents said yes they consume fish as part of their diet, equivalent to 242 of total 324 respondents surveyed items (Figure 3).

Meanwhile, the 83 respondents who do not consume the product, they were asked what the reasons were for not doing so. The most frequently mentioned reasons were 53% who responded they did not like the taste and 12% avoiding the product due to the smell thereof.

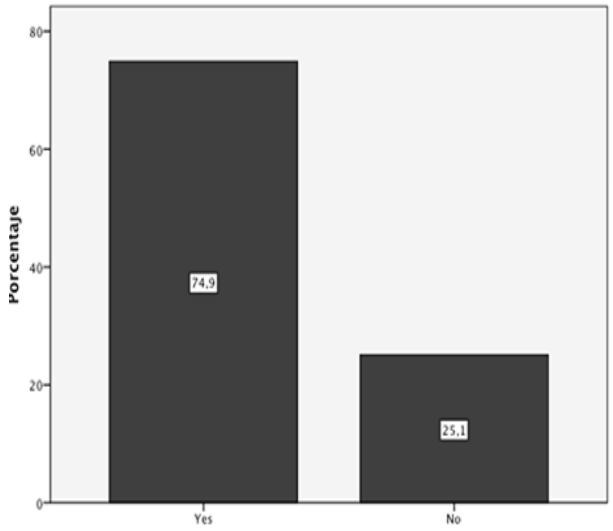

Figure 3 Consumption of fish zacatecana population

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Another aspect considered in the investigation was because they considered or not considered fish within the daily diet to which the 71% who think the fish mentioned it was mainly for being nutritious, healthy and tasty and 29% that considers the product within their daily diet mentioned that the main causes are that they do not like the taste or that causes allergy.

This can be seen in a better way in F.

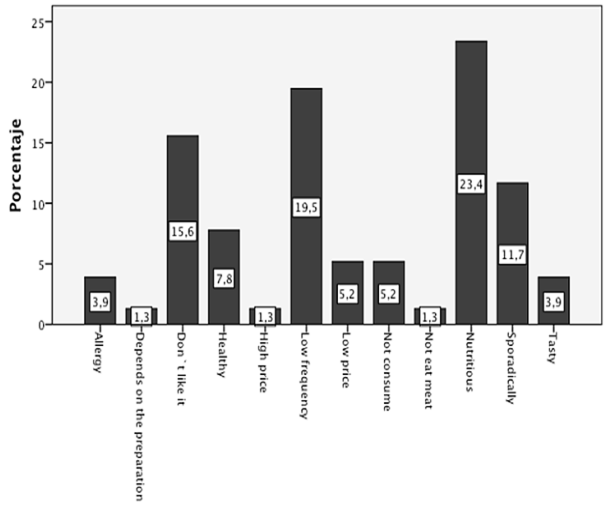

Figure 4 Consideration of fish as part of the daily diet

Because sometimes the perception that people have about the word 'everyday' may vary, the specific frequency of product consumption among the population was also investigated. The results are presented in Figure 5.

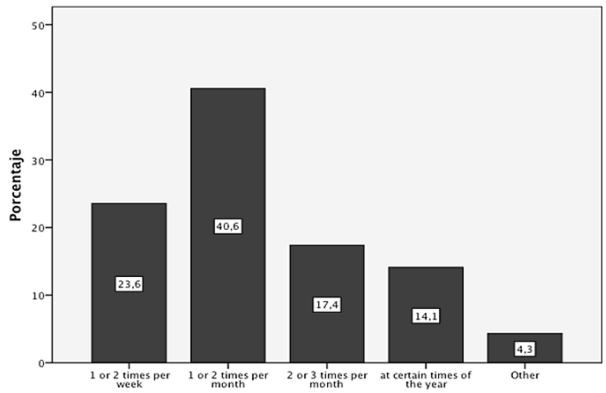

Figure 5 Frequency of fish consumption

As it can be seen, even when people mentioned who ate fish on a daily basis, when asked how often, 41% of the population said that consumed 1 to 2 times a month which can not necessarily be considered every day.

Another important aspect to consider in the investigation was the time of year when most frequently consumed product. The results showed that the time when more was consumed during Lent (69%).

In relation to the above, they were asked in what place used to take the fish, to what most people answered that at home (58%) (Figure 6)

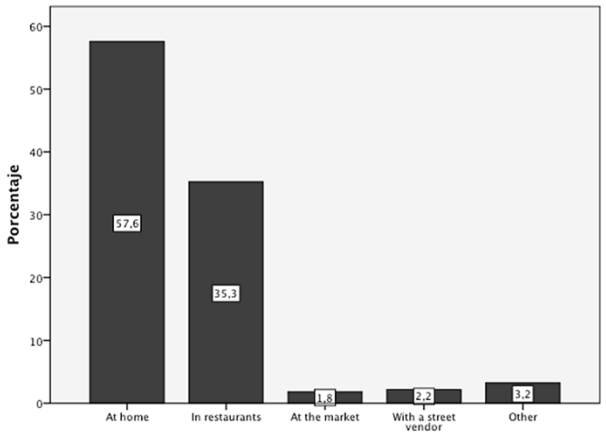

Figure 6 Place of fish consumption

Because one of the goals of the research was to know how much influences the difficulty in preparing fish for consumption thereof, an item to measure this aspect in particular was included where the results showed that 92% of respondents mentioned yes it influenced by the fact that people are not familiar with the various forms of preparation of fish consumption.

Subsequently, it was asked the population the way that prepares the product regularly where 48% responded that breading and 20% fried such responses constituted the majority (Figure 7).

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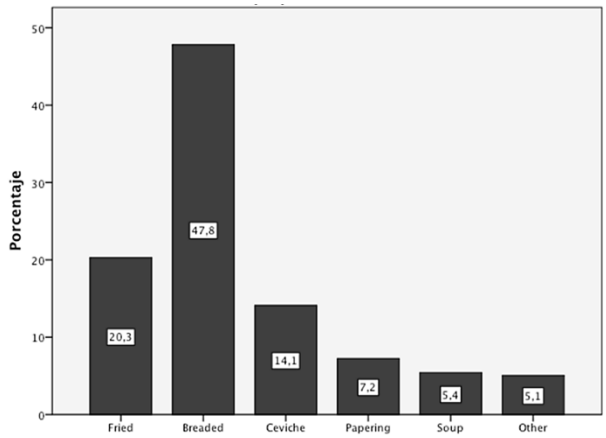

Figure 7 Preparation of fish.

Another specific objective of the research was to know if the product price directly influences the consumption of the population which asked respondents how much influence this factor. To give a point of comparison, it was estimated that the item had to be related to the cost of other meat. 33% of the population said the fish was more expensive than other meats, 24% less expensive, 26% considered to have the same cost and 16% mentioned not know about it. This is shown in Figure 8.

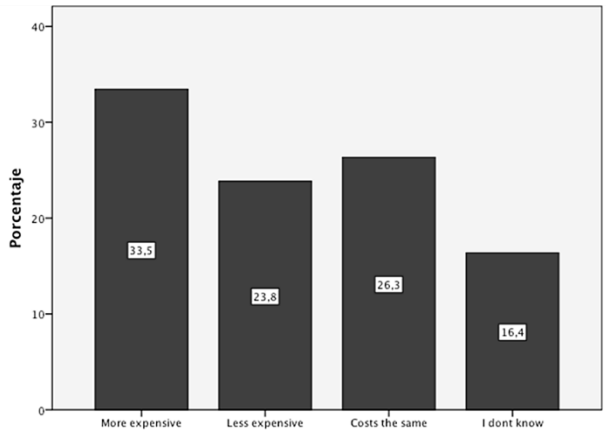

Figure 8 Cost of fish compared to other meats

In the same vein and comparing fish meat with other meats respondents were asked if they knew that the product brought the same quality of protein than beef to which 64% said no.

Similarly, they were asked if they knew that the fish meat had a higher amount of unsaturated fats compared to most consumed meat (beef, pork and chicken), to which 60% answered yes.

This shows that the zacatecanos know that fish is best in fat but had no knowledge of its content for protein.

To learn more about if people knew about the benefits of fish meat, it was asked openly what they saw as the specific contributions of fish health. In this aspect, the most frequently mentioned response was that fish is nutritious, followed by healthy and low in cholesterol (Figure 9).

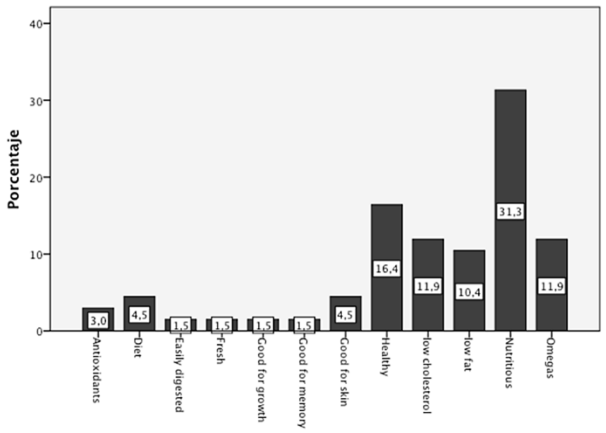

Figure 9 Health benefits of fish

Regarding marketing aspects, respondents were asked where they bought the fish, how much they would pay for one kilogram of fish and fish is what they buy more frequently.

The results of these questions were for the first fishmongers and supermarkets with 35 and 34% respectively.

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To the second question the answer with the most frequency was 100 to 120 pesos per kilogram (29%) and finally as the most consumed fish fillet and the result was crappie with 50 and 36% respectively.

Finally, respondents were asked about their knowledge of tilapia and cultivation of the same in a farm. For the above, they were considered some items related to knowledge of tilapia, consumption, where consumed, knowledge about the production of this product in Zacatecas farms and the benefits of tilapia produced in farms.

For the first 3 questions, 64% of respondents said yes they were aware about the existence of tilapia. However, they do not relate to the crappie but feel it is a completely different fish. 70% of respondents mentioned that although they have known, they have not consumed it, which contrasts with the type of product they buy where they mentioned that 36% buy crappie. Finally at 30% of people who reported eating tilapia they asked where have tried it. This percentage (72 of 324 people) 54% said they consumed at home and 22% in restaurants (Figures 10, 11 and 12).

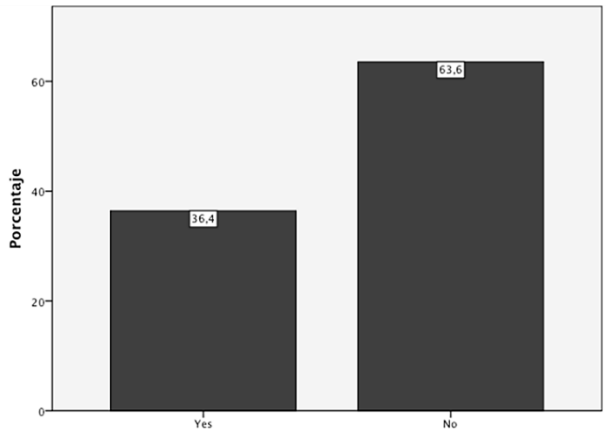

Figure 10 Knowledge of tilapia

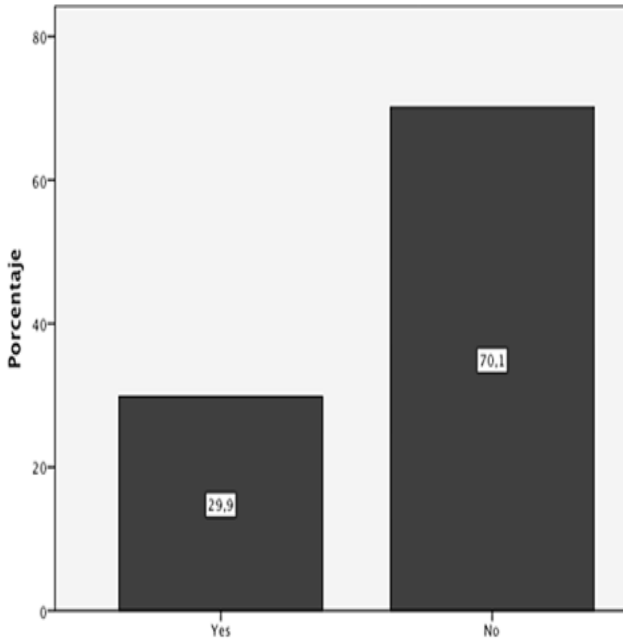

Figure 11 Consumption of tilapia

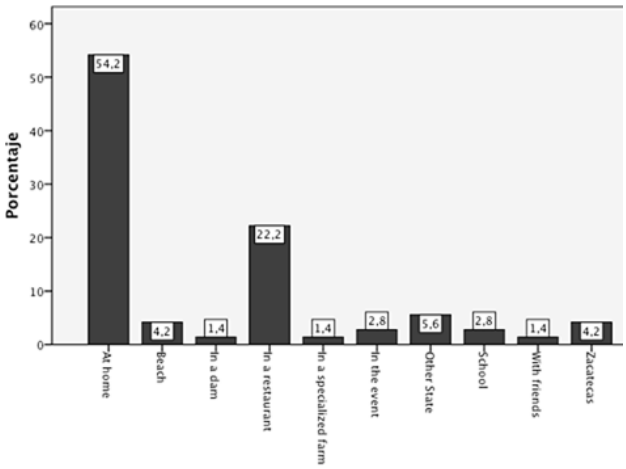

Figure 12 Place of consumption

As for the results of the tilapia produced on farm, of all respondents only 59 of 324 people said they knew the existence of tilapia farms in the state.

94% of interviewed people said not knowing the benefits that can be tilapia it produced on farms regarding tilapia in general and finally to the 18 people who said they knew the benefits of farmed tilapia were asked what were the benefits where most mentioned freshness (27%).

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Based on the above and after analyzing each of the above aspects, it can be concluded the following:

- 75% of respondents eat fish.
- Fish consumption in households is 1 or 2 times a month.
- Those who consume fish only eat special seasons particularly in Lent
- People consume fish mostly at home; they buy mostly in fishmongers and supermarkets.
- The most consumed fish fillet and crappie.
- Most people think that the preparation of fish consumption does affect consumption. However when asked how difficult it considered preparation that most responded that easy.
- The way it is prepared fish is mostly breading.
- Respondents consider that fish is more expensive than other types of meat which is proven with the fact that they are willing to pay between 100 and 120 pesos per kilogram.
- Finally, it is important to emphasize that even though the majority of respondents said not knowing the benefits that brought the fish to their health, they have in mind that fish is better than other meats. They perceived as nutritious and healthy and it has more "good fats".

Conclusions

The objective of this research was to determine consumer habits of fish in the metropolitan area of Zacatecas. In order to determine the consumer profile for aquaculture farms in the region, these farms grow mainly tilapia. The results yielded valuable information that will be considered for further research which aims to culminate in an efficient marketing strategy for the products of these farms, which allow positioning the fish farm between local and national consumers, finding an area of opportunity especially in data mentioned the fact that most of the population displays fish as better meat than other meats.

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