

# Seafood Mislabeling And Consumer Assessment



Mislabeled *Pangasius* (flounder) from a promotional bulletin in 2008.



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The question is whether consumers' perceptions are affected when they eat fish that is not the species they expected. Do differences in taste and other attributes for each species affect the quality perceptions of the fish? If so, they would also reduce consumers' satisfaction and fraudster profits in the medium term.

## Perceptions On Mislabeled Fish

Studying consumer perceptions of a mislabeled product is a difficult task. Laboratory and other experimental tests can assess the sensory aspects of consumption, and answer the key question on whether there is any difference in taste between species. But the problems increase when the goal is to collect real market data and clearly identify who is buying a mislabeled product and who is not.

This issue is especially difficult in the case of farmed species sold as wild. In many of these cases, especially when the fish is processed, DNA testing is needed to verify if the species is what it is supposed to be. In the case of exotic species, both local and imported species are often sold in the same forms, like blocks or fillets, as can be the case for tilapia and grouper fillets. But identification is easier when the exotic species is sold processed and the local usually is not. The former situation is quite frequent in countries with a long tradition of fresh seafood

consumption and a strong preference for local species.

*Pangasius* fillets grew in popularity with Spanish consumers between 2007 and 2009, but few consumers were provided with real information about the product they were purchasing. The usual required topics like country of origin or harvest method were frequently hidden, and in the worst cases, the name of the species was replaced or associated with other flatfish like sole or flounder.

## Spanish Survey

A face-to-face survey was conducted with 815 households involved in seafood purchasing in the Cantabria region in northern Spain during November 2008. The mislabeled name used for *Pangasius* fillets in this region was flounder. Real whole flounders were commonly sold fresh, but only the larger sizes were filleted in stores at customer request.

The local name for flounder, "ojito," was commonly used instead of the official Spanish name, "gallo," the one used for the mislabeled *Pangasius* fillets. In this market, a person who purchased "flounder fillets" was a likely victim of mislabeling.

Six hundred respondents were familiar with the product. Within this group, 392 had seen a fish fillet called "panga" in stores, while the rest were familiar with the "flounder fillets." About 58% of these respondents had purchased *Pangasius* fillets in the last three months. Almost 37% purchased them labeled as "panga" and 22% purchased "flounder fillets."

## Consumer Perceptions

Two logistic regression models were

used to assess the potential effects of mislabeled *Pangasius* fillets on the prices paid by consumers and their overall quality perceptions. Along with the names of the species, three other variables were included in the model as explanatory variables. As a significant number of fillets were sold defrosted, product presentation (frozen/defrosted) was considered another relevant variable, particularly if the defrosted product was also sold as "fresh." Country of origin (Vietnam/other) and harvest method (farmed/wild) were the other two explanatory variables completing the models.

As expected, the prices paid by consumers (Table 1) were found to be greater when the fillets were sold as flounder and defrosted. No significant effects were observed for the cases of country of origin and harvest method.

**Table 1. Logistic regression parameters for the prices paid by consumers.**

	B	Wald	Sig.
Name	0.816	15.440	0
Presentation	0.889	20.238	0
Origin	-0.050	0.040	0.842
Method	-0.284	0.948	0.330
Constant	-1.230	8.983	0.003

**Table 2. Logistic regression parameters for quality perceptions.**

	B	Wald	Sig.
Name	-0.497	4.438	0.035
Presentation	-0.066	0.079	0.779
Origin	0.060	0.043	0.836
Method	-0.616	4.001	0.046
Constant	1.522	10.920	0.001

The results of this model concluded that mislabeling improved fraudsters' profits in the short term at the cost of consumers. But the model for overall quality assessments (Table 2) showed higher scores for households purchasing "panga fillets" than those provided by the victims of mislabeling. They believed they were purchasing flounder, but not good flounder.

## Perspectives

The consumers' expectation of quality, in terms of taste and other attributes, associated with flounder conflicted with what they perceived with the mislabeled *Pangasius*, and led to dissatisfaction. But did the consequences of this dissatisfaction affect only the fraudster's reputation and income, or could it also damage the image of aquaculture in general and of the producer country in particular?

In this sense, the second model suggested that any kind of information about the farmed origin of fillets improved the scores given by the respondents. But this could have been simply a cue to justify the differences in quality regarding wild flounder, rather than an advantage of aquaculture.

## Could the consumers' dissatisfaction also damage the image of aquaculture in general and of the producer country in particular?

### Summary:

Fraudulent mislabeling in the seafood supply chain usually involves substitution of wild species with farmed, and misidentification of common fish as more exotic species. A survey of Spanish households found confusion in how *Pangasius* fillets were named, labeled and marketed. As expected, consumers paid more when the fillets were sold as flounder. The consumers' expectation of quality, in terms of taste and other attributes, associated with flounder conflicted with what they perceived with the mislabeled *Pangasius* and led to dissatisfaction.

Normal sales behavior highlights the benefits and most valuable attributes of a product and minimizes its potential deficiencies, but in the case of mislabeling, deficiencies are not just avoided, but replaced by misleading information that makes the product more attractive for consumers. Some of the most frequent cases of mislabeling in seafood trade relate to substitution of wild species with farmed, and misidentification of common fish as more exotic species.

Several studies have been done in an attempt to quantify the range and impacts of seafood mislabeling. Most of these works focused on estimating the frequency of this kind of fraud with particular species. Other researchers examined the effects of mislabeling on the incomes of consumers and retailers who fell victim to this practice. Additional research concentrated on the potential impacts of mislabeled products on consumers' health.

Not much work has been done in the field of consumers' satisfaction and whether their perceptions of mislabeled products vary relative to the perceptions of those who buy properly labeled fish or shellfish.

Seafood fraud is a worldwide issue that has increased with the globalization of trade. Along with product adulteration, mislabeling is one of the most common practices breaking the integrity of the seafood supply chain.

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