



Seafood Fraud Found in Boston-Area Supermarkets

Seafood is one of the most popular foods in the United States. It is also one of the most under inspected, which leads to consumers routinely receiving misleading, or fraudulent information on seafood labels, when they receive any information at all. Seafood fraud encompasses any illegal activity which misrepresents your purchased seafood for economic gain, including short weighting, over treating, and the subject of this report: mislabeling or substituting one species of fish for another.

The United States imports more seafood than any other nation. Of the 84 percent of seafood that is imported into the United States, only two percent is currently inspected and less than 0.001 percent specifically for seafood fraud. The complex and often obscure path seafood takes from boat to plate opens the door for illegal activity, making it easy to hide where fraud occurs along the food chain.

Recent studies have found that seafood may be mislabeled as often as 25 to 70 percent of the time for fish like red snapper, wild salmon and Atlantic cod, disguising species that are less desirable, cheaper or more readily available. Just this summer, researchers reported finding 38 percent of wild salmon mislabeled in the Puget Sound area of Washington.

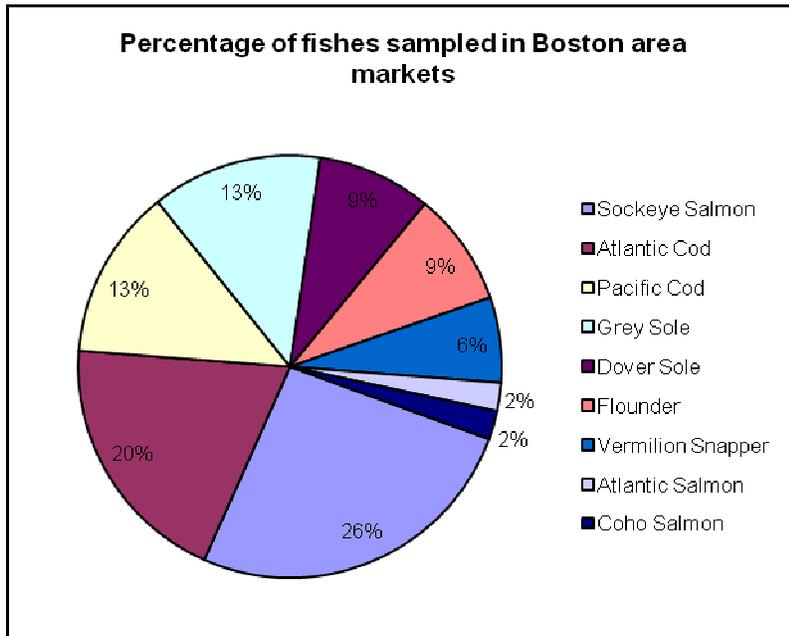
Seafood fraud impacts not just consumer's pocketbooks, but also the business of honest fishermen, seafood vendors and suppliers. Seafood mislabeling may pose health risks in the form of allergens, contaminants or pathogens in substituted species. Seafood fraud threatens not only our health, but the health of our oceans as well, where illegally harvested or overfished species may be substituted for legal and sustainably harvested seafood.

In May 2010, Oceana launched a dedicated campaign to Stop Seafood Fraud. As part of the initiative, Oceana recently tested seafood from Boston-area supermarkets to see if seafood fraud is occurring.

Oceana targeted popular supermarket chains in the Boston, Massachusetts metropolitan area. Fresh or frozen fish samples were purchased from the seafood departments of five stores in three chains in the early part of this year. Oceana staff attempted to purchase two discrete samples of three fish species at each store and obtained DNA identity results from 88 fish samples from a total of 92 that were collected. Four samples did not yield results, despite testing at two different labs.

Oceana's research focused on the three commonly mislabeled fish species listed above: red snapper, wild salmon and Atlantic cod. In cases where targeted species

were not available, other fish were purchased and tested, such as grey sole and vermilion snapper.



The University of Guelph in Ontario, Canada was contracted to analyze the fish samples collected by Oceana. The University uses DNA barcoding, a genetic technique pioneered at the University, to identify the true species identity of each market sample. This technique involves extracting a short DNA sequence from a gene found in all animals, which is then compared to a catalogue of more than 8000 fish species that have been barcoded as part of the Fish Barcode of Life initiative. (Learn more at www.fishbol.org.) Select samples were submitted to two other commercial labs for sample identity verification using other DNA methods. Photos of some whole snapper samples were also viewed by taxonomists.

The results of Oceana's testing show that seafood fraud is taking place in Boston-area supermarkets. In total, 18 percent (16/88) of the species identified by DNA analysis were found to be mislabeled. The rate of mislabeling ranged from 14 to 23 percent for any given supermarket chain.

The species of fish most commonly mislabeled in our study of Boston markets was Atlantic cod. Pacific cod was consistently substituted for Atlantic cod in our study. One supermarket chain sold Atlantic cod labeled as Pacific cod at one store, but sold Pacific cod labeled as Atlantic cod in another store.

The other consistently mislabeled fish species in our study was vermilion snapper. Our Oceana shopper thought he could not find red snapper for sale in supermarkets anywhere in Boston, so he purchased six whole fish samples labeled "vermilion snapper" instead. But our shopper was wrong. Four out of the six vermilion snapper fish purchased were actually true red snapper, while the other two were lane snappers. The

substitution of grey sole for yellowtail flounder rounded out the remaining mislabeled seafood in our study.

Table 1. Mislabeled seafood samples in Boston-area markets

Labeled Species	DNA result	Common name identified by DNA testing	Market	Location
Pacific cod	<i>Gadus morhua</i>	Atlantic cod	A	Boston Suburbs
Pacific cod	<i>Gadus morhua</i>	Atlantic cod	A	Boston Suburbs
Atlantic cod	<i>Gadus macrocephalus</i>	Pacific cod	A	Boston Suburbs
Atlantic cod	<i>Gadus macrocephalus</i>	Pacific cod	A	Boston Suburbs
grey sole	<i>Limanda ferruginea</i>	yellow tail flounder	A	Boston , MA
grey sole	<i>Limanda ferruginea</i>	yellow tail flounder	A	Boston , MA
vermilion snapper	<i>Lutjanus campechanus</i>	red snapper	B	Boston Suburbs
vermilion snapper	<i>Lutjanus campechanus</i>	red snapper	B	Boston Suburbs
vermilion snapper	<i>Lutjanus campechanus</i>	red snapper	B	Boston MetroWest
vermilion snapper	<i>Lutjanus campechanus</i>	red snapper	B	Boston MetroWest
vermilion snapper	<i>Lutjanus synagris</i>	lane snapper	B	Boston MetroWest
vermilion snapper	<i>Lutjanus synagris</i>	lane snapper	B	Boston MetroWest
Atlantic cod	<i>Gadus macrocephalus</i>	Pacific cod	C	Boston MetroWest
Atlantic cod	<i>Gadus macrocephalus</i>	Pacific cod	C	Boston MetroWest
Atlantic cod	<i>Gadus macrocephalus</i>	Pacific cod	C	Boston MetroWest
Atlantic cod	<i>Gadus macrocephalus</i>	Pacific cod	C	Boston MetroWest

Some may question whether the mislabeling uncovered in this study is a concern, since the substituted fish probably would have cost roughly the same as the fish consumers thought they were buying. In this study, conservation or local food concerns may have suffered the most. For example, some people in Boston may want to purchase Atlantic cod specifically as a local iconic fish, while other people may want to choose Pacific cod out of sustainability concerns. In both cases, the desires and intent of these shoppers were frustrated by mislabeling in the Boston area. If an overfished or unsustainably

caught seafood item is always available in the marketplace why would anyone be concerned?

As for the vermilion snapper substitutions, a shopper may want to specifically avoid the overfished red snapper, but his or her conservation concerns would be thwarted by the type of mislabeling Oceana uncovered. The bottom line is this type of mislabeling is illegal -- and people should be able get what they want and what they pay for.

With about 1,700 different species of seafood from all over the world now available for sale in the United States, it is unrealistic to expect the American consumer to be able to independently and accurately determine what fish is really being served.

The United States needs to increase the frequency and scope of inspections to help stop seafood fraud. Until consumers can track a fish from the fishing boat to their plates, combating seafood fraud will continue to be an uphill battle.

Consumers have a right to know what they are eating and should be able to trust that the information they are provided is accurate.

Oceana is calling on the federal government to make combating seafood fraud a priority, including implementing existing laws, increasing inspections, and improving coordination and information sharing among federal agencies. Oceana is also working to ensure that the seafood sold in the U.S. is safe, legal and honestly labeled. An essential part of that goal is a traceability system where information such as when, where, and how a fish is caught follows it throughout the supply chain – from boat to plate – allowing consumers to make more informed decisions about the food they eat, while keeping illegal fish out of the U.S. market.

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Oceana is the largest international advocacy group working solely to protect the world's oceans. Oceana wins policy victories for the oceans using science-based campaigns. Since 2001, we have protected over 1.2 million square miles of ocean and innumerable sea turtles, sharks, dolphins and other sea creatures. More than 500,000 supporters have already joined Oceana. Global in scope, Oceana has offices in North, South and Central America and Europe. To learn more, please visit www.oceana.org.