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Seafood fraud in the United States: current science and policy options
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Multidisciplinary Review Team and References available on the FPRC Website.

Summary of Findings:

- Seafood is an important source of dietary protein in the United States (US), with approximately 90% of the seafood imported.
- Although intentional mislabeling of seafood products is illegal, seafood fraud is widespread in the US.
- Seafood fraud poses significant economic, public health, and environmental concerns.
- The complexity, size, and diversity of the international seafood trade makes effective regulation and prevention of seafood fraud challenging.
- Implementation of existing laws and better coordination between government agencies (Customs and Border Protection [CBP], National Marine Fisheries Service [NMFS], Food and Drug Administration [FDA]), may help reduce seafood fraud through: increased seafood inspections and testing; improving documentation and verification; and required seafood traceability.

Background
Seafood (fish and shellfish) is the world’s most-traded food commodity, worth nearly $130 billion in 2012. In comparison, beef, the second most traded animal-based protein food commodity is valued at only $36 billion. Americans, on average, consume nearly 16 pounds of seafood per person each year, about 90% of which is imported. Total seafood imports in the United States (US) increased by 27% from $13.3 billion in 2009 to $16.9 billion in 2011 and have remained relatively stable since then. The seafood trade is uniquely diverse when compared to other animal protein sources, in that it is comprised of nearly 1,700 edible species including numerous fish and mollusks, many of which share little in common other than being of aquatic origin. The seafood supply chain is extremely complex, with many products crossing national borders several times throughout the capture, processing, distribution, and final consumption process. China, Canada, Thailand, and Indonesia accounted for 48% of the total US import value in 2013. Since 2010, imports from India have almost tripled while imports from Chile have more than doubled.

The complexity of the seafood trade creates an environment in which American consumers can be easily deceived. Seafood fraud, also known as economically motivated adulteration (EMA), occurs when a food product is intentionally mislabeled or modified to gain financial advantage. Data compiled by the National Center for Food Protection and Defense (NCFPD) demonstrated that seafood has been the most commonly implicated food product of all reported cases of EMA since 1980, accounting for nearly one third (31%) of all cases. A variety of recent independent investigations, including ongoing work at the University of Minnesota, have started to shed light on the degree to which seafood EMA is occurring in the US. A recent survey that performed DNA testing of seafood sold in metropolitan-area restaurants and grocery stores found that on average ⅓ of samples tested were in fact entirely different species than those advertised, with tuna (59%) and snapper (86%) being the most commonly adulterated species.

How and why does seafood fraud occur?
The most common form of seafood EMA occurs when a cheaper species is labeled as a more expensive one, and is thus sold at a higher price. Some species of fish are more likely to be mislabeled than others, depending on regional demand, season, and preparation. A prime example of significance to Minnesotans is the misrepresentation and sale of zander (a lower value species that is native to Eastern Europe) as walleye, the state fish. Additional types of seafood fraud to increase market value involve the modification of seafood products such as: increasing weight (over icing, water adsorption); changing filet color; using unapproved additives; and masking origin. Another example of seafood fraud
involves the mislabeling of imported seafood in terms of species name or country of origin in order to avoid regulations and fees.

**Why is seafood fraud a cause for concern?**

Seafood fraud creates potential public health, economic, and environmental concerns:

*Public Health:* The diversity of seafood presents a wide range of potential public health hazards in terms of microorganisms, toxins, parasites, chemicals, and allergens. Accurate labeling provides valuable guidance for seafood consumers to make safe and informed decisions. Additionally, some substituted lower value seafood products may contain unspecified additives or may have been treated with antibiotics that have been banned in the US and yet be sold as a product perceived to be safe.

*Economic costs:* Retailers, food service, and consumers pay unjustified higher prices if an illegal and intentional act is conducted for the purpose of economic gain at any point along the long and complex production line of seafood. Even small changes in price can add up to major losses for retailers and consumers. Furthermore, fisheries that are following the rules may have their prices undercut by illegally caught or mislabeled foreign fish that may evade tariffs, inspection fees, and permits.

*Environmental damages:* Illegal, unreported, and unregulated fishing undermines conservation measures and threatens endangered species. Catching juvenile fish or more fish than the allowed quota, fishing during closed spawning seasons, fishing in protected areas, or fishing without a permit all may disrupt populations and create ecological impacts. The ability for these fish to enter the supply chain as another species continues to provide an economic incentive for this activity.

**What US Agencies are involved?**

Three federal agencies play key roles in detecting and preventing seafood fraud: the Department of Health and Human Services’ Food and Drug Administration (FDA), the Department of Commerce’s National Marine Fisheries Service (NMFS), and Department of Homeland Security’s Customs and Border Protection (CBP).

- The FDA is responsible for ensuring that the nation’s food supply, including seafood, is safe, wholesome, and properly labeled. The FDA is authorized to enforce the *Federal Food, Drug, and Cosmetic Act*. The act prohibits the misbranding or adulteration of food products, which would include the mislabeling and substituting of seafood products (one type of seafood fraud). The FDA inspects US importers and domestic and foreign processors to ensure their compliance with applicable requirements, including labeling requirements and FDA’s Seafood Hazard Analysis and Critical Control Point (HACCP) regulations. The HACCP regulations require seafood processors to identify and develop processes to mitigate biological, chemical, and physical hazards that are likely to occur.

- NMFS addresses seafood fraud through its voluntary, fee-for-service inspection program, in which inspectors verify label accuracy, including country of origin, net weight, and species identification. NMFS finds some kind of fraud in at least 40 percent of all products submitted to them voluntarily.

- CBP collects customs duties on imports, and seeks to prevent the evasion of customs duties. Goods imported into the US may be subject to duties on the basis of their seafood type, value, and country of origin.

In 2009, the Government Accountability Office (GAO) estimated that only 2% of seafood imported into the US was inspected, and only 0.001% of all imported products are inspected for fraud.

**What has been done recently to address seafood fraud and protect public health?**

*Food Allergen Labeling & Consumer Protection Act (FALCPA, 2004):* Requires that all foods containing fish and/or shellfish disclose this information on the product label.

*Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006:* This law is the primary law governing marine fisheries in US Federal Waters. It was amended in 2006 to include mandates on annual catch limits and accountability measures to address illegal, unreported, and unregulated (IUU) fishing, and calls for increased international cooperation. The Act requires National Oceanic and Atmospheric Administration (NOAA) Fisheries to produce a biennial Report to Congress that lists nations the US has identified for IUU fishing.

*FDA Seafood List:* Publicly available list of seafood names that is intended to help the industry correctly label products. The 2009 update reflected over 400 name changes.
In Progress/Proposed

Presidential Task Force on Combating Illegal, Unreported and Unregulated Fishing and Seafood Fraud (Formed on 6/7/2014): The Task Force reported their recommendations to the President “for the implementation of a comprehensive framework of integrated programs to combat IUU fishing and seafood fraud that emphasizes areas of greatest need.” The public comment period on how to implement these recommendations closed on January 20, 2015.

Safety And Fraud Enforcement for Seafood Act (Bill, introduced to Senate on 3/11/2013): seeks to improve interagency cooperation on seafood safety and fraud prevention, building upon those of the Federal Food, Drug, and Cosmetic Act. This act seeks to encourage efficient use of inspection personnel, intergovernmental cooperation, use of data, and utilization of NOAA’s Seafood Inspection Program as a third-party auditor to inspect imported seafood. NOTE: Only a small percentage of introduced legislation ultimately becomes law, nevertheless, the proposed Senate bill demonstrates Congressional interest in the issue.

Summary

Seafood is an important component of US diets and a valuable international trade commodity. At the same time, great potential exists for seafood fraud to occur. Numerous investigations have found that seafood fraud is a major problem in the US, with potentially severe economic, public health, and environmental risks. Efforts to protect the US market from seafood fraud would benefit from a greater understanding of the complex domestic and international seafood supply chains in order to identify where opportunities for fraud occur, and strategies that can help to prevent and control seafood fraud.