



Estimates of illegal and unreported fish in seafood imports to the USA



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ABSTRACT

Illegal and unreported catches represented 20–32% by weight of wild-caught seafood imported to the USA in 2011, as determined from robust estimates, including uncertainty, of illegal and unreported fishing activities in the source countries. These illegal imports are valued at between \$1.3 and \$2.1 billion, out of a total of \$16.5 billion for the 2.3 million tonnes of edible seafood imports, including farmed products. This trade represents between 4% and 16% of the value of the global illegal fish catch and reveals the unintentional role of the USA, one of the largest seafood markets in the world, in funding the profits of illegal fishing. Supply chain case studies are presented for tuna, wild shrimp and Chinese re-processed Russian pollock, salmon and crab imported to the USA. To address this critical issue of unintended financing of illegal fishing, possible remedies from industry practices and government policies may include improved chain of custody and traceability controls and an amendment to the USA Lacey Act.

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1. Introduction

Illegal, unreported and unregulated (IUU) fishing is a significant global problem jeopardizing ecosystems, food security, and livelihoods around the world. As our protein-hungry planet faces an unprecedented crisis of overfishing – 85% of all commercial stocks are now fished up to their biological limits or beyond [1] – fishing practices that violate domestic or international laws, evade reporting requirements, or simply escape management altogether pose a major challenge to the sustainable use of ocean resources. IUU fishing distorts competition, harms honest fishermen, weakens coastal communities, promotes tax evasion, and is frequently associated with transnational crime such as narcotraffic and slavery at sea. Moreover, the total extractions of living resources from marine ecosystems are needed in order to understand the sustainability of fisheries both in terms of ecology and economics since catches reported to national and international agencies (FAO) exclude IUU, discards and often small-scale and recreational fishery catches [2].

Recent estimates of IUU extent by country and region have revealed substantial IUU world wide between 13% and 31% of reported catches, and over 50% in some regions. This illegal catch is valued at between \$10 and \$23.5 billion per year [3]. The 1995 FAO Code of Conduct for Responsible Fisheries [4] and the 1992 UN

Agenda 21 (chapter 17) initiated an international framework for addressing this problem, recently termed ‘fishery crime’ [5]. Attempts at control have focused on fishery management through improving Monitoring, Control, and Surveillance (MCS), through a UN Port State agreement to restrict chandler support for suspect vessels [6], and by national and Interpol tracking of suspicious vessels including transshipment at free ports. These activities have substantially improved the prospects for addressing IUU fishing and associated crimes, but significant profits are still being made from illegal fishing.

Fishery markets, increasingly global, and, despite increasing use of chain of custody documentations [7], notoriously opaque at the distribution level, provide another opportunity to reduce profits from illegal fishing by isolating trade. Therefore there is a growing need to understand not only where IUU fishing takes place but also where and how illegal products ultimately enter the markets. In this paper, we investigate one key dimension of the global IUU problem by estimating the amount of illegal and unreported fish entering the US seafood market, one of the largest in the world. Any major destination market for illegal seafood will thus be a major source of revenue for illegal fishing.

2. Methods

2.1. Scope of analysis

This study is limited to estimating the percentage and approximate amounts and values of illegal and unreported products

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entering the United States as imports. It does not include products that may originate in “unregulated” fisheries. As with previous studies, although “unregulated” fishing remains a significant obstacle to sustainable livelihoods, this paper does not cover the full gamut of IUU fishing, but is restricted to “illegal and unreported” (IU) or more simply “illegal” fishing, since unreported fishing is technically illegal because reporting is mandatory for all UNFAO countries.

Second, this work does not include domestic products landed by USA flag vessels and processed and sold entirely in the United States. It is possible that it may include some products that, after originating with USA vessels and even possibly landed in the USA, have been exported for processing in other countries and then re-imported into the USA. Although the United States has a strong regulatory structure for monitoring and controlling illegal fishing activities, particularly when compared to a number of the countries exporting seafood to the United States, illegal fishing is known to occur in U.S. domestic waters [8,9] with some estimates as high as 10–20% [10]. However, no effort is made here to estimate IUU in domestic fisheries of the USA.

Finally, this study looks only at edible seafood imports, fish products imported into the USA for human consumption. It excludes fish products imported for animal consumption or for use in industrial products, though almost all of those imports are from wild-caught fisheries that also experience some level of illegal fishing.

2.2. Estimation methods

The analysis depends on knowing the amount and constituents of seafood imported into the USA, the proportion that derives from wild caught fish and the provenance profile of these imports by country and region. Second, the total amount of illegal fishing for all major fishing countries has been estimated [11] and these figures have been refined here by fish species and region using additional information. Imports of key products to the USA market in 2011 are identified and estimates made using the ‘anchor point and influence table’ approach [12] and some estimated product flow scenarios.

2.2.1. Estimation of seafood imports to the USA

The United States and Japan have been essentially tied in recent years as the largest single country import markets for seafood, both importing between 13% and 14% of the global total. The EU is the largest overall market, importing about 27% of the total. Together these three markets account for about 55% of global seafood imports.

Seafood consumption in the USA totaled about 2.1 million tonnes, second only to China [13] representing 6.8 kg per capita in 2011 [14]. (This includes domestic production that is consumed inside the USA.) American consumers spent an estimated \$85.9 billion on fish products in 2011, with about \$57.7 billion spent at foodservice establishments, \$27.6 billion at retail, and \$625 million on industrial fish products [15]. Table 1 shows that tuna, crab, pollock and cod are the most consumed wild-caught seafood products.

According to NOAA, in 2011 roughly 90% of seafood consumed in the United States was imported, and about half of this was wild-caught [16]. The percentages for both imports and wild caught origin are estimates by NOAA. According to personal communications with NOAA staff, no detailed examinations of the origin of imports to the USA have been conducted by NOAA, USDA or others. At least two factors complicate efforts to calculate these numbers. First, NOAA estimates may not fully account for “re-imported” fish products – i.e., products of U.S. origin that are

Table 1

Wild-caught marine seafood consumption in the USA. Note this table does not include shrimp, the most popular consumed seafood (1.9 kg annual consumption per person) or salmon, the third most popular consumed seafood (0.88 kg annual consumption per person) despite the fact that a portion of this seafood is from wild-caught fisheries National Fisheries Institute. Source: Top 10 U.S. consumption by species chart. <http://www.aboutseafood.com/about/about-seafood/top-10-consumed-seafoods>.

Overall rank	Wild-caught marine species group	Annual per capita consumption, kg	% of USA consumption
2nd	Canned Tuna	1.18	17
4th	Pollock	0.59	9
8th	Crab	0.26	3
9th	Cod	0.23	3
Total		2.27	33
Overall consumption		6.80	100

exported for processing and then re-imported into the U.S. market. However, since illegal fish products are often mixed into supply chains at the processing stage, the foreign locus of processing makes it appropriate to consider even re-imported products as “imported” for purposes of this paper. Second, U.S. trade data often does not differentiate between farmed and wild-caught catches entering the USA market and so additional work was undertaken to estimate this proportion from the key supplier countries.

The majority of these wild-caught imports to the USA are from 10 countries: China, Thailand, Indonesia, Ecuador, Canada, Viet Nam, the Philippines, India, Mexico, and Chile. For all the countries that exported catch into the USA in 2011, freshwater, non-edible, and declared farmed seafood product catches were excluded from total catches to get estimated total imported marine capture [17]. These top 10 countries (out of a total of around 120 countries exporting fish products to the U.S. that year) represented approximately 80% of 2011 seafood imports to the USA by volume and value [18]. Total imports of edible seafood products to the USA in 2011 were 2,379,940 t, valued at \$16.5 billion. Seafood imports from the top 10 countries exporting to the U.S. were 1,914,610 t of edible seafood products valued at US\$13 billion. The 30 products examined for this study (see below) represented about 45% of U.S. 2011 wild-caught seafood imports by volume; NOAA estimates that about half of total imports are from aquaculture.

2.2.2. Estimation of illegal caught fish imported

Estimates of the total level and value of illegally caught fish entering the market in the USA as imports are estimated using the following scheme, as illustrated in Fig. 1.

- For each of the top 10 countries as sources of imports, the top three wild-caught seafood products (by species groups and volume) exported to the United States were identified, resulting in 30 import streams identified by country and species group. The species groups were defined by the statistical categories available in the NMFS trade database. In two cases (Ecuador and Mexico), the top three products exported to the USA included shrimp. Since data from NMFS do not distinguish wild from farmed shrimp, additional analyses were performed to estimate the proportion attributable to wild shrimp in each case.
- For each of the 30 country and species product categories, the originating fisheries were identified. Although no precise definition of a “fishery” was employed (again, due to the form and organization of available data), fishery sources were generally identified by some combination of vessel nationality, geographical location and jurisdiction of fishing, gear type, and target species.

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