In response to our recent article, Stawitz et al. (2016), Mariani et al. (2017), Donlan et al. (2017), and Warner et al. (2017) raise important concerns about how our findings could be influenced by our conservation classification system, and potential conservation consequences of misinterpreting our conclusions. We respond here to emphasize our many points of agreement to clarify that our results should not be interpreted as an overall positive impact of mislabeling on conservation, and to argue that our overall conclusions are robust to data limitations. We discovered some errors in the original manuscript, which have now been corrected in that manuscript and are described in the Supplementary Information (S1) to this correspondence. We address statistical issues raised by Donlan et al. (2017) and Warner et al. (2017) in the Supplementary Information (S2). Finally, we highlight that this study is meant to provide a broad and first analysis; we agree that subsequent finer-scale investigations will greatly inform our understanding of the ecological and financial impacts of seafood mislabeling.

We do not suggest mislabeling benefits conservation, but rather that (1) the effect of mislabeling on conservation status varies across taxa, and thus, (2) mislabeling is not used consistently among labeled taxa to mask the sale of imperiled species. We found an overall difference in IUCN status between labeled and true items to be nearly zero (2–6% of an IUCN status), but also identified labeled taxa that were, on average, substituted with fish of greater conservation concern. Mislabeling is therefore likely to be of great consequence for some taxa, and managers should target these worst instances of mislabeling (e.g., by improving chain-of-custody tracking).

We agree with Mariani et al. (2017) that we must use the metric of IUCN status carefully to evaluate species conservation status, but we demonstrate that accounting for their concerns still suggests that conservation consequences of mislabeling are mixed. IUCN status may overestimate the vulnerability of fishes by using biomass trends to assess status (Hutchings 2000) or underestimate vulnerability because stocks considered to be “collapsed”
by fisheries standards are still large (Branch et al. 2011). However, when all data-deficient and not evaluated species are assumed to have the worst status within their genus, IUCN status of true items was +0.17 (95% bootstrap confidence interval: 0.11–0.23) compared to the status of labels (S3). The use of alternative metrics (FAO stock status and RAM B/B_MSY and U/U_MSY), which were available for far fewer species in our dataset, yielded a similar conclusion: that substituted items were of slightly better conservation status (Stawitz et al. 2016; figures S7–S9). Another recent genetic study (Willette et al. 2017) corroborates this finding, and life-history-based measures of vulnerability were not conclusive in either direction (−0.03 [−0.28, 0.21] FishBase vulnerability score, where negative values indicate less vulnerable true species than labeled species; S4). Thus, our finding that mislabeling does not consistently replace taxa of low conservation concern with those of greater conservation concern appears robust to limitations of using the conservation metric of IUCN status.

Scientists are often criticized for withholding management recommendations until they reach an “ideal” understanding of a system. As Mariani et al. (2017) suggest, an ideal understanding of mislabeling will be underpinned by a global understanding of relevant social and ecological processes operating across many scales—something we are unlikely to reach in the near future—but it is important to address mislabeling now. We acknowledge these current limitations, but intend for Stawitz et al. (2016) to (1) provide a first step toward understanding the consequences of mislabeling at a broad scale and (2) guide subsequent finer-scale investigations and management efforts toward seafood taxa or sources where conservation consequences are likely to be greatest. The issue of seafood mislabeling benefits from detailed debate about analyses, but would be better served by collaboration between fisheries scientists and conservationists.

Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher’s web site:

**Table S1.** Untransformed coefficients and p-values for individual purchase locations in the GLM.

**Figure S1.** IUCN status of ordered seafood item (beginning of arrow) and true seafood item (end of arrow).

**Figure S2.** Composition of samples compared to the genus expected based on the label.

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