



**MINDS-ON 1: The Fish Hook - Introduction to the Market Survey**

**Suggested Timing: 30 minutes**

In this introductory activity, students will read two articles about the issue of fish mislabelling and complete two graphic organizers to identify the issue, the implications of the issue and possible solutions. They will complete the organizers individually and in pairs, and then discuss the results with the whole class.

**Prior Knowledge and Skills**

- Ability to identify the main ideas in a body of text

**Success Criteria**

- Quality responses are provided during group discussions
- Graphic organizers thoughtfully completed

**BLM M1:** Fish Mislabelling Graphic Organizer  
**BLM M2:** Comparing Sources Graphic Organizer  
**Article #1:** Vancouver Sun Article  
**Article #2:** CBC News article

- Provide each student with one of the two articles, either Importer employs DNA testing to battle 'rampant' seafood mislabelling or Mislabelling means rare fish sold: Marketplace as well as a copy of **BLM M1: Fish Mislabelling Graphic Organizer**.
- Once each student has read his/her assigned article, s/he will independently complete BLM M1: Fish Mislabelling Graphic Organizer.
- Once all of the students have completed their individual organizers, each student should pair with a student who read the other article and together complete **BLM M2: Comparing Sources Graphic Organizer**.
- Finally, have a class discussion about the problem identified in the articles including the implications for health, regulations and the economy and the role that DNA barcoding can play in terms of identifying fish for market.

**Extensions**

- Students could read some of the articles listed in the **ADDITIONAL INFORMATION** section and compare the rates of fish mislabelling in Canada to those in the United States and Europe.
- Have students do an online search for recent studies and news articles.

**Implementation Options**

- If individual information technologies (i.e., smartphones, tablets, etc.) are available, BLM M1 and BLM M2 could be shared without printing and the students could complete individually.



### CONNECTING TO CONTENT ON CURIOCITY

- [Students Uncover Fish Fraud](#) (**Article** 2012)
- [What's really on your plate? DNA barcoding and food fraud](#) (**Article** 2013)
- [Will that be a horse burger or a donkey burger?](#) (with Starting Points) (**Article** 2013)
- [Preserving Aquatic Resources One Barcode a Time](#) (**Article** 2012)
- [Snaring Poachers with DNA Barcoding](#) (**Article** 2012)

### ADDITIONAL INFORMATION

- <https://www.cpacanada.ca/en/connecting-and-news/cpa-magazine/articles/2015/january/a-fishy-tale> (Accessed Feb. 26, 2018)  
This article, *A Fishy Tale*, from the Chartered Professional Accountants of Canada (January 1, 2015) explores seafood fraud issues with the shrimp products sold in North America.
- <http://kitchener.ctvnews.ca/truth-in-advertising-dna-barcoding-shines-light-on-commercial-claims-1.2524336> (Accessed Feb. 26, 2018)  
This article from the Kitchener News, *Truth in advertising? DNA barcoding shines light on commercial claims* (posted Aug. 19, 2015), describes some of the DNA barcoding, including testing of sushi, at the University of Guelph.
- [http://www.uoguelph.ca/news/2013/02/largestever\\_sea.html](http://www.uoguelph.ca/news/2013/02/largestever_sea.html) (Accessed Feb. 26, 2018)  
This article, *Largest-Ever Seafood Fraud Study Has Guelph Ties*, on the University of Guelph website (posted February 22, 2013), describes the role of the University of Guelph in testing fish samples and identifying fish mislabelling.
- <http://www.keprtv.com/news/tech/Restaurants-plan-DNA-certified-premium-seafood-134562903.html> (Accessed Feb. 26, 2018)  
This *KEPR-TV* (posted 2011) news article, *Restaurants use DNA barcoding to certify premium seafood*, announces the U.S. Food and Drug Administration official approval of DNA barcoding to prevent the mislabelling of both locally produced and imported seafood in the United States.
- <http://www.sciencedaily.com/releases/2011/07/110714190900.htm> (Accessed Feb. 26, 2018)  
This *ScienceDaily* article, *Cod Mislabelling Four Times More Prevalent in Ireland Than UK, Study Shows*, from *ScienceDaily* (posted July 14, 2011) reports results from a study in which DNA barcoding of fish samples revealed that 28% of cod products in Ireland are mislabelled, as compared to 7% in the UK.
- <http://www.christianpost.com/news/restaurants-to-use-fish-dna-barcode-technology-to-identify-species-63309/> (Accessed Feb. 26, 2018)  
This *CP* article, *Restaurants to Use Fish DNA Barcode Technology to Identify Species* (posted November 28, 2011), announces that barcoding has been approved by the U.S. Food and Drug Administration to identify fish market substitution in the restaurant industry.
- <http://www.sciencedaily.com/releases/2010/04/100422112643.htm> (Accessed Feb. 26, 2018)  
This *ScienceDaily* article, *DNA Barcoding Reveals Mislabelled Cod and Haddock in Dublin* (posted April 22, 2010), describes the role of DNA barcoding in identifying various fish products that are being mislabelled under European Union (EU) regulations.

### Videos on YouTube

- <https://www.youtube.com/watch?v=6D9G7Bav22c> - Are you Eating Fake Fish (The Doctors) (2017, 4:31 min.)
- <https://www.youtube.com/watch?v=iLmVCgoakDE> - Secrets of supermarket meat and fish: Testing the food you buy (CBC Marketplace) (2013, the fish fraud segment is in the first 5 minutes)
- <https://www.youtube.com/watch?v=Spz2V9dXfsk> - How Seafood Fraud Works (2012, 2:24 min.)
- <https://www.youtube.com/watch?v=w5cgZ0RRLuc> - Fish Fraud and the Red Snapper (2015, 4:37 min.)
- <https://www.youtube.com/watch?v=cNqFnmm4> - Cheap Fish That Can Make You Sick Is Being Served in Some Sushi Restaurants (Inside Edition) (2015, 3:04 min.)