

# Fish Flashcards



## Instructions

### Spark discussion with fish flashcards.

These flashcards can be used to help your class discuss the relevance of fish DNA barcoding to their everyday lives. They will be able to make connections between fish DNA barcoding and its impact on health, environmental, financial, and legal issues. We have suggested one way you can use these Fish Flashcards in your classroom to complement Bio-Rad's Fish DNA Barcoding Kit. You can also come up with other fun ways to use the cards and share them with teachers just like you on the Explorer Community website, [bio-rad.com/explorercommunity](http://bio-rad.com/explorercommunity).

### Preparation and Activity

1. Print out the flashcards (single-sided) and fold as indicated.
2. Place 1–2 flashcards at each workstation.
3. Have the students form workstation groups and ask them to read and discuss the flashcard scenarios as groups.
  - a. The front side of each card will suggest an alleged fish dish that they have eaten and the back side will tell them about the fish they have actually eaten. This will be followed by some facts and a question.
4. Ask the groups to share their flashcards and some thoughts they had regarding their scenarios.
5. You can also ask the students to categorize their flashcard scenarios according to real-life relevance (health, environmental, financial, legal, or other). You can do this by writing these categories on a chalk/whiteboard and having your students post their flashcards under the appropriate categories.
6. Some other questions you can ask:
  - a. How can fish mislabeling affect your life?
  - b. What would you do if you found out fish that you were buying was mislabeled?
  - c. How can results from DNA barcoding affect fish mislabeling? Other areas of our lives?
  - d. How else can you use DNA barcoding?

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You actually just ate tilefish. It averages three times more mercury than grouper. This may not affect you unless you are a young child or a pregnant woman. Because it is mislabeled, the fish is more affordable. Do you continue to purchase the "grouper," knowing it could harm other people?



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FOLD ON DOTTED LINE

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You purchased grouper fillets from a fishmonger and prepared them at home.

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You were served tilapia instead. Tilapia is much less expensive (\$8 vs \$24 per pound). The restaurant's fish supplier tricked the owner, however, at the same time you are helping to save the red snapper population.



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FOLD ON DOTTED LINE

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You ordered grilled red snapper from a local seafood restaurant.

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Your stew contained puffer fish. Unlike monkfish, puffer fish contain a neurotoxin, causing you to become severely ill and hospitalized. The manager was unaware of the seafood substitution. Who should be responsible for this incident?



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FOLD ON DOTTED LINE

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You had monkfish stew at a cafeteria.

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Overfishing is causing bluefin tuna to become an endangered species. The government sets quotas on the amount that can be caught, but most fisheries ignore these. Do you still purchase the fillet, even though there is a chance that your seafood counter is depleting the bluefin tuna population?



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FOLD ON DOTTED LINE

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You bought a bluefin tuna fillet from a grocery store to make fancy tuna melts.

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Your fillet is cod. The FDA prohibits selling fish under the labeling of “scrod” because it refers to a small fish and not a species. This has no negative impacts, yet the fish market is breaking the law. Should you report it?



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FOLD ON DOTTED LINE

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You purchased a piece of scrod from your favorite fish market.

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It's halibut, but from the Atlantic Ocean. While the Pacific halibut population is quite substantial, the Atlantic halibut are in danger of going extinct. If you continue to buy this brand's seafood dinner, you could be contributing to the disappearance of this fish.



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FOLD ON DOTTED LINE

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You ate a fish (Pacific halibut) and chips meal purchased from the frozen food section of your local grocery store.

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Your catfish was not caught nearby. It came from Vietnam, which has different regulations on drugs farmers give to their fish. Is it safe to eat?



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FOLD ON DOTTED LINE

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You ate local catfish at a seafood restaurant.



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You consumed Chilean sea bass. The Chilean sea bass is an important part of the Southern Ocean food chain. By eating these tacos, you could be contributing to damaging to this ocean's ecosystem.



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FOLD ON DOTTED LINE

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You bought sea bass fish tacos from a local seaside food truck.

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Don't be fooled — you had escolar. Escolar has a naturally occurring toxin that can cause serious health issues in some people. Luckily, you did not get sick. Will you continue to eat at this restaurant?



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FOLD ON DOTTED LINE

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You ordered white tuna at a sushi bar.