

UNIT 6

Food for Thought

Farmed juvenile glass eels are sold to fish farmers in Asia who will raise them for sale in fish markets. The population of wild eels has declined in the U.S. in the past decade, prompting the federal government to consider listing the species as threatened.

THINK AND DISCUSS

- 1 Look at the photo and read the caption. Would you be willing to eat eels, whether farmed or wild? Why, or why not?
- 2 The phrase “food for thought” is used when discussing something that makes one think seriously about an issue. Share a time when you learned about something that gave you “food for thought.”

PART 1

The Future of Food

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Note Who Says What

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PART 2

TED TALKS

Dan Barber

How I fell in love with a fish

PUT IT TOGETHER

Communicate

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PART 1 The Future of Food

BEFORE YOU LISTEN

A COMMUNICATE Work with a partner. Discuss these questions.

- 1. Look at the photo and read the caption. How do you feel about eating genetically altered foods?
- 2. Think about what your grandparents ate and how they prepared it. In what ways has technology changed how we prepare food and what we eat?
- 3. Science fiction often shows food being produced instantly by machines. Would you be happy to eat food produced in this way? Why, or why not?

B 2.10 COMMUNICATE Work in a small group. Complete the tasks.

- 1. You are going to hear a discussion in an environmental science class. The professor begins by talking about “the food crisis.” A crisis is an emergency. What do you know, or what can you imagine, about this crisis? Discuss.
- 2. The professor asks her students to research how technology might solve the food crisis. In general, do you believe that technology can solve big problems like this? Discuss.
- 3. Listen to segment 1 of the discussion. Does the professor’s explanation of the food crisis match your ideas? Does the professor’s view about technology match your views? Discuss.



VOCABULARY

C 2.11 Read and listen to these paragraphs with words from the discussion. Then complete each definition with one of the bold words.

- a. Some kinds of shellfish, including clams, mussels, and oysters, can **filter** pollution from the water in which they live. This ability to remove pollutants means they play an important **ecological** role.
- b. One study suggests consumers may **discard** up to one quarter of the food they buy. Some people are **skeptical** whether the real figure is this high, but others believe it and have taken steps to reduce their food waste. Still others take a **neutral** position and say that more studies need to be conducted.
- c. Some chefs are famous for using unusual **ingredients** in their recipes, including fruits and vegetables that are **edible** but rarely eaten. In addition to being delicious, these unusual foods are often rich in **nutrients**.
- d. Farmed fish used to be a **niche** product, but it now makes up around 40 percent of the fish purchased in some countries. This increase comes at a cost, though, as **conventional** aquaculture, or fish farming, can cause pollution.

- 1. _____ (adj) related to the connections among plants, animals, and people
- 2. _____ (adj) not supporting any position or side in an argument
- 3. _____ (n) the foods and substances that are used to make a particular dish
- 4. _____ (n) substances in food, such as vitamins, that are necessary for life
- 5. _____ (adj) related to products or services that are for a limited market or group
- 6. _____ (v) remove something that is unwanted from a liquid or gas
- 7. _____ (v) throw away something that is unwanted or not useful
- 8. _____ (adj) usual or traditional
- 9. _____ (adj) doubtful or disbelieving
- 10. _____ (adj) can be eaten

D COMMUNICATE Work with a partner. Take turns responding to these questions. Use the bold words in your responses.

- 1. What is one issue that you are **neutral** about? Explain why you do not support one side or another.
- 2. What **ingredients** are needed to make your favorite dish? Where can you buy them?
- 3. What are some foods with a lot of **nutrients** that you enjoy eating? How often do you eat them?
- 4. Would you agree or disagree that, these days, people often **discard** things that still have value? Why?
- 5. Think of a time when you chose not to act in a **conventional** way. What did you do, and why?
- 6. What is the most unusual **edible** thing you have ever eaten? When, where, and why did you eat it?

LISTEN

E **2.12** **1.29** **LISTEN FOR MAIN IDEAS** Listen to segment 2 of the discussion. Then match these main ideas to the person who says them. One answer matches both people, and two answers won't be used.

- a. Aquaponics combines two ways of farming into one.
- b. Conventional farming lacks the benefits of aquaponics.
- c. Technology has already benefited many who lack food.
- d. There are various possible solutions to the food crisis.
- e. Traditional methods of farming result in polluted water.
- f. Using 3D printers is not likely to solve the food crisis.

The professor: _____ The female student: _____

F **2.13** **LISTEN FOR DETAILS** Work with a partner. Complete the summaries of the two kinds of food technology discussed by adding the correct word to each blank. Use two words twice. Then listen to segment 3 to check your answers.

farms

layers

nutrients

items

machines

plants



3D food printers work by printing _____ of powdered ingredients on top of each other. These build up to produce _____ of food. In the future, they might be able to add _____ to foods, but currently the _____ are slow, costly, and only suitable for non-essential foods.



Aquaponics _____ produce both crops and fish. They have two _____. On top are the crops growing in water that is rich in _____. On the bottom are tanks of fish. The fish produce waste. This waste is added to the water in which the _____ grow.

WORDS IN THE DISCUSSION

cell (n): the basic unit that makes up plants and animals
protein (n): a substance found in meat or fish that is necessary in people's diets
soil (n): the top layers of earth in which plants grow

LISTENING SKILL Ask Questions

Asking questions before, during, and after listening can help you listen effectively.

1. Before listening, think of questions about the topic. Then listen for the answers to your questions while the speaker is talking. For example, if the topic is fish farms, your questions might include:

What is the speaker's opinion about fish farms?
Do fish farms produce high-quality fish?

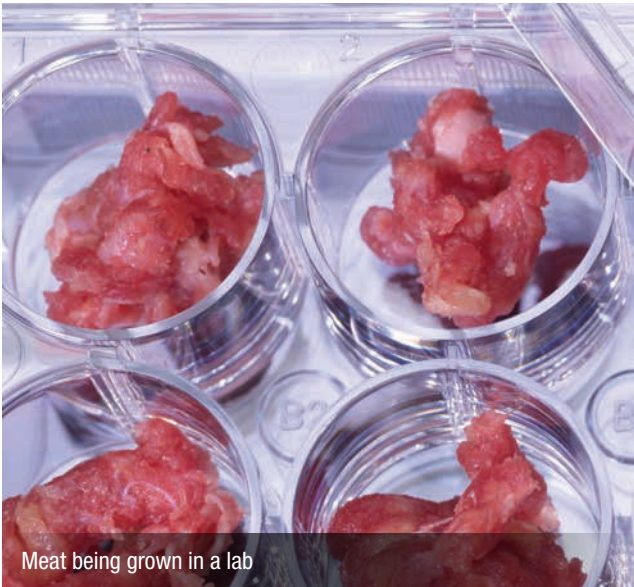
2. While listening, think of questions about things you would like to know more about and write them down. If possible, ask the speaker your questions when he or she finishes. Your questions might include:

What other fish species are suitable for fish farming?
What is the environmental impact of fish farming?

3. After listening, review your notes and memory of what the speaker(s) said. If you think of more questions at this time, write them down. Then improve your understanding of the topic either by speaking to somebody who can answer your questions or researching the answers yourself.

G **2.14** **COLLABORATE** Work in a small group. Complete the tasks.

- 1. You are going to listen to part of the discussion in which a student talks about a technology to grow meat. Before you listen, discuss and write down some questions about this topic.
- 2. Listen to segment 4. Write down any other questions that occur to you.
- 3. After listening, think about what you heard. Write down any other questions you would like to ask.
- 4. Share your questions with your group members. Discuss how you could find the answers.



Meat being grown in a lab



An expensive gourmet burger

H COMMUNICATE Work with a partner. Discuss these questions.

- 1. For you, when is the most effective time to write questions: before, during, or after listening? Why?
- 2. How soon after listening is the best time to review your notes and write additional questions? Why?

NOTE-TAKING SKILL Note Who Says What

Sometimes you will have to take notes when several people are speaking or when one speaker quotes the words of others. In both cases, you should indicate who says what in your notes.

If you know that you will hear multiple speakers *before* you start taking notes, you can divide your notes into different sections for each speaker. If you do not know until *after* you start taking notes, you can add to your notes in the following ways:

- Write the name (first or last) or initials of the speaker—for example: *Mark, Zuckerberg, or MZ*
- If you don't know the speaker's name, you can abbreviate his or her job, role, or speaking order—for example: *prof* for *professor*, *int* for *interviewer*, or *S3* for *third speaker*
- You can also abbreviate the speaker's gender—for example: *M* or ♂ for *man*, or *W* or ♀ for *woman*

I COLLABORATE Work in a small group. Complete the tasks.

- 1. How likely are you to hear multiple speakers when listening in these situations? Write L for *likely* or U for *unlikely*.

_____ lecture	_____ podcast
_____ seminar	_____ online video
_____ meeting	_____ radio interview
_____ debate	_____ presentation

- 2. Write how you would abbreviate these speakers in your notes. Then compare your abbreviations with those of the other people in your group.

_____ student	_____ fish farming expert
_____ lecturer	_____ second male speaker
_____ radio announcer	_____ office manager
_____ female presenter	_____ third employee

J 2.15 COMMUNICATE Listen to segment 5. Complete the notes by adding the speakers. Then discuss with a partner what each abbreviation in the notes means and which other words you could abbreviate.

- 1. _____ AQ = less nrg / resources than conven farms
companies developing LED lights = less nrg / no heat
LEDs help crops grow well—e.g., sweet pots / straws / tomatoes
- 2. _____ agree 3D prmtng not obvious solutn to FC
- 3. _____ technol to grow meat in lab = may be sustainable solutn to FC

AFTER YOU LISTEN

K THINK CRITICALLY Evaluate. Work in a small group. Discuss these questions.

- 1. In what ways, if any, has the global food crisis affected your country?
- 2. Which of the three technologies discussed by the students is the most likely to solve the food crisis? Why do you think so?
- 3. What other technologies, such as fish farming, do you think might have an impact on the food crisis?

L COLLABORATE Work with a partner. Write some questions that you would like to ask the two students—Amal and Austin—about the topics they researched. Then discuss your questions with another pair of students.



Earthquake victims in Nepal receive emergency food and water. Natural disasters can contribute to the global food crisis.

SPEAKING

SPEAKING SKILL State Your Position

When you are discussing an issue, tell your listeners what position, or side, you agree with. To make this clear, state your position directly—even if it is neutral—and support it with statements, examples, and questions.

Look at this example. Notice how the speaker explicitly states her position and then supports it with both an **example** and a question and answer.

Some people think aquaculture has too many problems to be a sustainable way to feed the world. For me, though, it's a great solution. At some places, for instance, the farmed fish eat the same food as wild fish, which is very sustainable. And what about the environment? Well, fish farms can cause pollution, but well-designed ones produce less waste than most conventional farms.

(See page 166 in the *Independent Student Handbook* for more information about expressing your position.)

M COMMUNICATE Read these excerpts from the discussion. Underline the phrases the speakers use to state their positions. Then work with a partner and use the underlined phrases to state your own positions about the following topics: how to solve the food crisis, the importance of eating healthily, what foods parents should never give their children.

- 1. “Personally, I’m neutral on the value of technology as a potential solution to the food crisis. For me, it’s just one among several options.”
- 2. “So I feel that printing food will be a niche technology at best, and I’d like to discuss aquaponics instead. . . . For me, it has great potential to provide healthy, sustainable food.”
- 3. “At first, I was skeptical and didn’t think the technology would be important. As I researched, though, I came to think it has a lot of potential as a sustainable solution to the food crisis.”



Aquaponics could offer one solution to the food crisis.

PRONUNCIATION SKILL Connected Speech

In normal connected speech, speakers link some sounds together and omit other sounds.

- 1. **Vowel–vowel linking:** Add a /w/ or /y/ sound to link a vowel sound at the end of one word with one at the start of the next word (e.g., *show about* /sho_wabout/).
- 2. **Consonant–vowel linking:** Hold the consonant sound at the end of one word so it links with a vowel sound at the start of the next word (e.g., *heard a* /hear_da/).
- 3. **Consonant–consonant linking:** Hold the consonant sound at the end of one word and link it to the next consonant if the next word starts with the same consonant sound (e.g., *about two* /about_two/).
- 4. **Elision:** If a word ends with an unstressed /t/ or /d/ consonant sound, you can omit the /t/ or /d/ sound (e.g., *student heard* /studen_heard/).

Listen to this example of connected speech, which demonstrates elision and the three kinds of linking:

2.16

The student heard a radio show about two solutions to the food crisis.
/The studen_hear_da radio sho_wabout_two solutions to the food crisis/

N 2.17 Work with a partner. Decide which sounds will be linked and which sounds will be omitted in this excerpt. Then listen and check your answers. Finally, practice saying the excerpt with the correct linked and omitted sounds.

“And aquaponics requires far less energy and resources than conventional farms. I even read that companies are developing LED lightbulbs for this kind of farming.”

O COLLABORATE Work with a partner. Complete these tasks.

- 1. Predict some of the reasons why people would *not* eat one or both of these foods: a salad made with aquaponically grown vegetables and a burger made from laboratory-grown meat.
- 2. Interview other students and write down their answers and reasons.
- 3. Share the interview data with your partner. Were your predictions accurate?

NAME	EAT SALAD?	EAT BURGER?	REASONS (IF NO)

PART 2 TEDTALKS

How I fell in love
with a fish

“Want to feed the world?
Let’s start by asking: How are
we going to feed ourselves?”

BEFORE YOU WATCH

A COMMUNICATE Work in a small group. Read the title of the TED Talk and the information about Dan Barber. Then discuss the questions.

1. Barber is described as a “well-known chef.” Who are some other well-known chefs? Are they only famous for their cooking abilities?
2. Barber’s talk is about falling in love with a fish. What do you think he means by this, and why do you think he chose this title for his talk?


DAN BARBER Chef

Dan Barber is a well-known chef who runs two restaurants in the New York City area. He has won multiple awards for the quality of his cooking. His restaurants serve food that has been grown locally or raised under sustainable conditions. Barber has written books and articles about how delicious food, healthy eating, and sustainable farming should all be connected.

Dan Barber’s idea worth spreading is that if we adopt more sustainable food production methods, we can produce food that is good for the planet, good for us, and good to eat.

B COMMUNICATE Work with a partner. Do you think chefs usually have positive or negative views of aquaculture, or fish farming? Why? In his talk, Barber speaks very positively about *Veta la Palma*, a fish farm in Spain. Make a list of questions you have about this fish farm.

VOCABULARY

C  **2.18** These sentences will help you learn words in the edited TED Talk. Read and listen to the sentences. Then choose the answer that has the same meaning as each bold word.

1. The restaurant owner reviewed the plans and adopted the one that had the fewest **drawbacks**.
a. disadvantages b. opportunities c. solutions
2. During cooking, the **conversion** of some substances into sugars adds delicious flavor to food.
a. process b. change c. observation
3. Fish are often concentrated in schools, or groups, in nutrient-rich waters rather than being equally **distributed** across the oceans.
a. caught up b. spread out c. stuck together
4. The chef was pleased to see that her customers were happily **feasting** on the dishes she prepared.
a. making good choices b. discussing in detail c. eating large amounts
5. The organic market almost went out of business last year, but it is **thriving** under the new manager.
a. having a hard time b. doing very well c. developing a little
6. The expert pointed out that much more food could be grown on the land if it were farmed **intensively** rather than extensively, as is currently the case.
a. from time to time b. with maximum effort c. as a general rule
7. The villagers installed a filter to **purify** the water they were drinking and using for cooking.
a. remove impurities from b. remember the uses of c. reduce the effects of
8. The book was popular because the author presented a clear **conception** of how to eat healthily.
a. idea or understanding b. option or decision c. time or schedule
9. The chef was criticized for being an idealist, rather than a **realist**, about sustainable food production.
a. person focusing on choices b. person focusing on goals c. person focusing on facts
10. The politician argued that the only way to restore the health of the oceans and avoid **depleting** fish stocks was to catch fewer fish.
a. clearing up b. keeping up c. using up

D COMMUNICATE Work with a partner. Take turns responding to these questions. Use the bold words in your responses.

1. Winning the lottery is many people's dream. Are there any **drawbacks** to winning?
2. If you could choose several foods to **feast** on, which ones would you choose? Why?
3. Think of a **thriving** business, such as a restaurant, that you know. What are some reasons it is doing so well?
4. Have you ever done something **intensively**? What did you do and why? What was the result?
5. In general, are you more of a **realist** or the opposite, an idealist? Explain.
6. Name some daily tasks that **deplete** your energy level. What tasks recharge you?

WATCH

learnmore *Veta la Palma* fish farm is located on an island in the Guadalquivir River. The river runs through southwestern Spain and empties into the Atlantic Ocean. The land was once used for beef cattle but is now used for aquaculture, or fish farming, as well as growing crops and raising animals. *Veta la Palma* is not a traditional fish farm in that its goals are not just to raise fish, but also to enhance the environmental quality of the area and generate new economic value in a sustainable way.



E 1.30 WATCH FOR MAIN IDEAS Read these pairs of statements. Then watch the edited TED Talk. Check (✓) the statement in each pair that accurately summarizes one of Barber's main points.

- 1a. _____ Chefs want to sell fish that is sustainable, but global fish stocks are declining.
- 1b. _____ Chefs are concerned because many species of fish are becoming hard to catch.
- 2a. _____ The goal of agriculture is to farm intensively so that farmers benefit rather than predators.
- 2b. _____ The goal of agriculture, including fish farming, should be to create food that is delicious.
- 3a. _____ Focusing on the relationships among plants and animals will lead to better food.
- 3b. _____ Focusing on how to feed communities will let farmers produce more food.

WORDS IN THE TALK

aquatic (adj): related to water

contaminants (n): substances that cause pollution; impurities

pesticides (n): substances used by farmers to control insects or other harmful organisms

plankton (n): tiny plants and animals that live in water

radical (adj): related to a change that would affect the traditional way of doing things



F 1.31 WATCH FOR DETAILS Watch segment 1. Check (✓) the points about *Veta la Palma* that Barber discusses. Then compare your answers with a partner.

1. _____ Miguel, the biologist at *Veta la Palma*, is an expert in relationships, not in fish.
2. _____ *Veta la Palma* does not feed its fish because they eat the same food as wild fish.
3. _____ Directors often film movies at *Veta la Palma* because it is such a beautiful place.
4. _____ *Veta la Palma* loses one fifth of its fish and eggs to predators such as flamingos.
5. _____ Miguel thinks that the number of birds at *Veta la Palma* shows the system's health.
6. _____ The water at *Veta la Palma* comes from a polluted river, but the system purifies it.

G COMMUNICATE Work in a small group. Look at your list of questions from exercise B on page 113. Which of your questions were answered in the talk, and which ones are still unanswered?

H ASK QUESTIONS Work in a small group. Write some questions you would like to ask either Dan Barber or Miguel, the biologist at *Veta la Palma*. Then share your questions with another group. Decide on the five most important questions in your shared lists and discuss how you could find answers to them.

I ▶ **1.32** **NOTE WHO SAYS WHAT** Barber is the only speaker in his talk, but he quotes several other people. Take notes as you watch segment 2, which includes excerpts from the talk. Who does Barber quote? How did you indicate each speaker in your notes?

J ▶ **1.33** **WATCH FOR THE SPEAKER'S POSITION** Read the statements. Then watch segment 3. Indicate the order in which Barber gives his position on these issues by numbering the statements from 1 to 5.

- _____ Farmers who know about ecological relationships produce good food.
- _____ In order to feed the world, communities should first be able to feed themselves.
- _____ Small family farms and farmers’ markets are worth supporting.
- _____ The future of good food will include produce that is locally grown and organic.
- _____ The goal of agriculture should be to produce delicious food.

K **THINK CRITICALLY** **Reflect.** Work in a small group. Take turns stating your position on each of the five issues listed in exercise J.

L ▶ **1.34** **EXPAND YOUR VOCABULARY** Watch the excerpts from the TED Talk. Guess the meanings of the phrases in the box.

- for better or for worse
- a straight answer
- set somebody up
- soak up
- work its way through

M **WATCH MORE** Go to TED.com to watch the full TED Talk by Dan Barber.

AFTER YOU WATCH

N **THINK CRITICALLY** **Reflect.** Work in a small group. Discuss these questions.

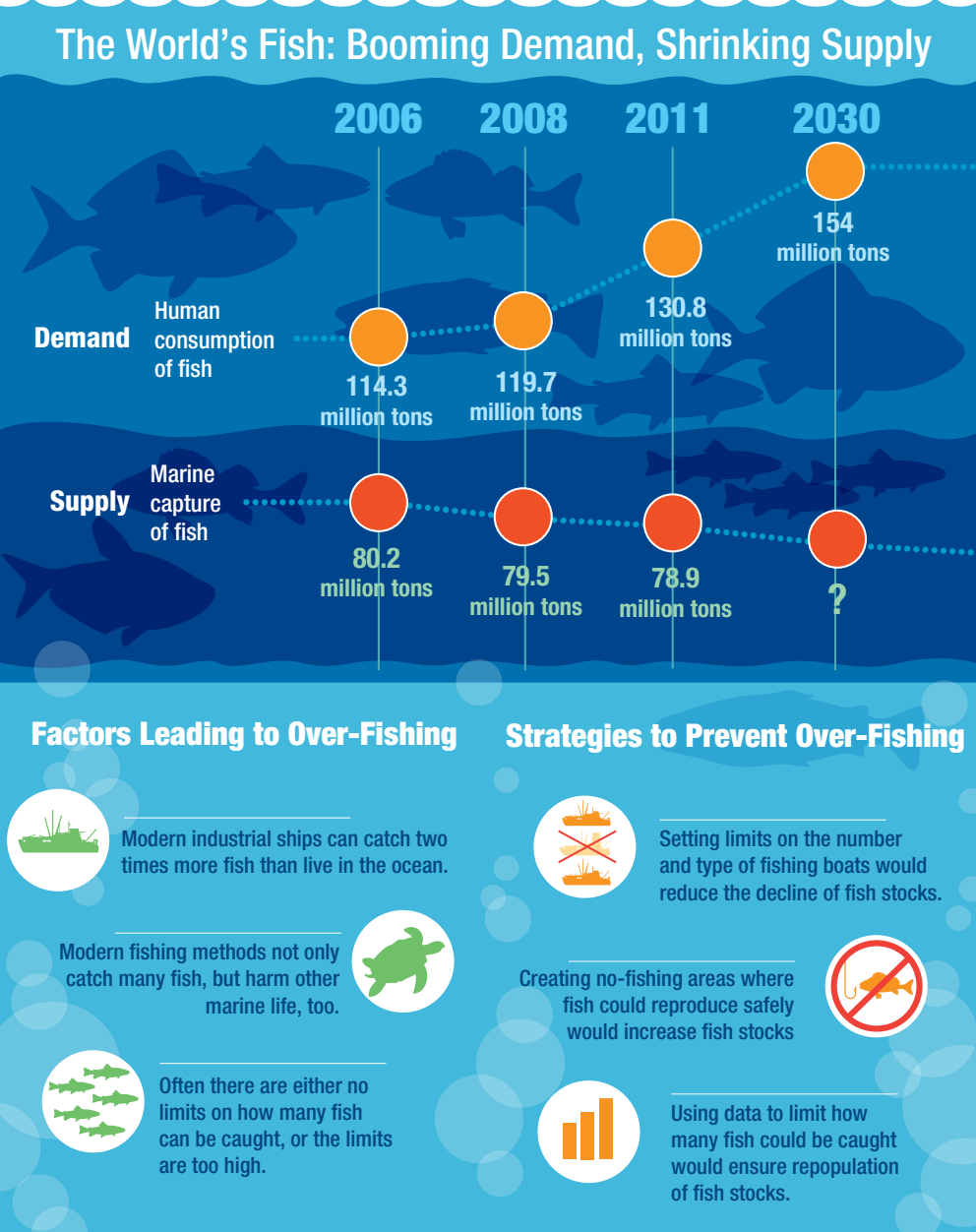
1. After learning about the methods used there, would you like to eat fish from *Veta la Palma*? Why, or why not?
2. If you could go on an eco-vacation to *Veta la Palma*, would you like to go? Why, or why not?
3. Do you think *Veta la Palma* will become the new global standard for fish farms? Why, or why not?

O **THINK CRITICALLY** **Interpret an Infographic.** Work with a partner. Choose the word in parentheses that completes the sentence so that it correctly summarizes information from the top section of the infographic on page 118. Then compare your answers with another pair of students.

1. Between 2006 and 2008, human demand for fish increased by (*about/under*) five million tons.
2. In contrast, the world’s supply of fish dropped (*slightly/substantially*) in the same period.
3. From 2008 to 2011, demand for fish rose from 119.7 million tons to (*almost/over*) 131 million tons.
4. In the same period, there was a further small decline in supply of (*around/up to*) half a million tons.
5. By the year 2030, demand for fish is expected to reach (*approximately/exactly*) 154 million tons.



Declining Fish Stocks



Source: Bloomberg Philanthropies

P THINK CRITICALLY Categorize. Work in a small group. Discuss which title matches each description in the bottom section of the infographic. Write the titles in the spaces. Two titles don't match any of the descriptions.

Destructive Practices	Healthy Options	Ineffective Laws
Controlled Access	Protected Areas	Smart Limits
Temporary Solutions	Too Much Capacity	

Q COLLABORATE Work with a partner. What things could we do on a personal level to help reduce the problem of over-fishing? Discuss your ideas. Then share them with the class. Which of the ideas do you think Dan Barber would support? Why?

Put It Together



A THINK CRITICALLY Synthesize. Work with a partner. Discuss these questions. Then share your ideas with another pair of students.

1. Dan Barber’s idea worth spreading is about producing sustainable food that is environmentally friendly, healthy, and delicious. Which of these ideas do the professor and students also discuss in Part 1?
2. During the academic discussion, the students discuss three food-production technologies—printing food, aquaponics farms, and growing meat in a laboratory. Which of the three technologies do you think Barber would most support? Why?

B THINK CRITICALLY Reflect. Answer these questions. Then discuss your responses with a partner.

1. After studying this unit, have your views changed about the importance of sustainable food? Why, or why not?
2. Do you feel technology will have a big impact on the food you eat in the future? Why, or why not?
3. Do you think more farms should focus on relationships, as *Veta la Palma* does? Why, or why not?

COMMUNICATE

ASSIGNMENT: Role-Play an Advertisement Working in a group, you will create an advertisement and a slogan—a short, memorable phrase used to promote a product or service—for one of these types of sustainable foods. Either act out your advertisement or, if you prefer, present your ideas. Review the ideas in Parts 1 and 2 and the listening and speaking skills as you prepare your presentation on one of these foods:

- Vegetables that have been grown aquaponically
- Meat that has been developed in a laboratory
- Fish that has been farmed at *Veta la Palma*

PREPARE

PRESENTATION SKILL Connect with Your Audience

Connecting with your listeners or audience is a great way to deliver a message that will be interesting and memorable. There are several things you can do to connect with your audience effectively. These include:

- Expressing ideas that match the hopes or concerns of your audience
- Talking about topics that are likely to be familiar to your listeners
- Telling stories or giving examples that people understand and can relate to
- Saying things in a humorous or memorable way

(See page 173 in the *Independent Student Handbook* for more information about connecting with your audience.)

C COLLABORATE Work in a small group. Complete the tasks.

1. Decide which type of sustainable food you will create a promotional advertisement for.
2. Come up with an advertisement and a slogan that will connect with your audience.
3. Decide if you will act out your advertisement as a role play or just present your ideas.
4. Decide the role each group member will take when acting out or presenting your advertisement.
5. Rehearse your advertisement or presentation several times until you can deliver it confidently.

D Read the rubric on page 181 before you deliver your advertisement. Notice the evaluation criteria. Keep these categories in mind as you deliver your advertisement and watch those of your classmates.

PRESENT

E Act out or present your advertisement to the rest of the class. Watch the advertisements of the other groups.

F THINK CRITICALLY Evaluate. Work in a small group. If possible, each member of your group should have acted out a different advertisement. Share feedback on the advertisements you watched. Say which ads you think would be most likely to make consumers buy the food and why. Say whether you enjoyed acting out the advertisement and why, or why not.

REFLECT

Reflect on what you have learned. Check [✓] your progress.

- I can**
- ☐ think of questions before, while, and after I listen to improve my understanding.
 - ☐ make a note of who says what when I listen to multiple speakers.
 - ☐ state what side of an issue I support to help listeners understand my perspective.
 - ☐ use connected speech to sound natural when speaking.
 - ☐ connect with my listeners or audience in order to deliver a powerful message.

I understand the meanings of these words and can use them.

Circle those you know. Underline those you need to work on.

conception AWL	distribute AWL	filter	nutrient
conventional AWL	drawback	ingredient	purify
conversion AWL	ecological	intensively AWL	realist
deplete	edible	neutral AWL	skeptical
discard	feast	niche	thriving